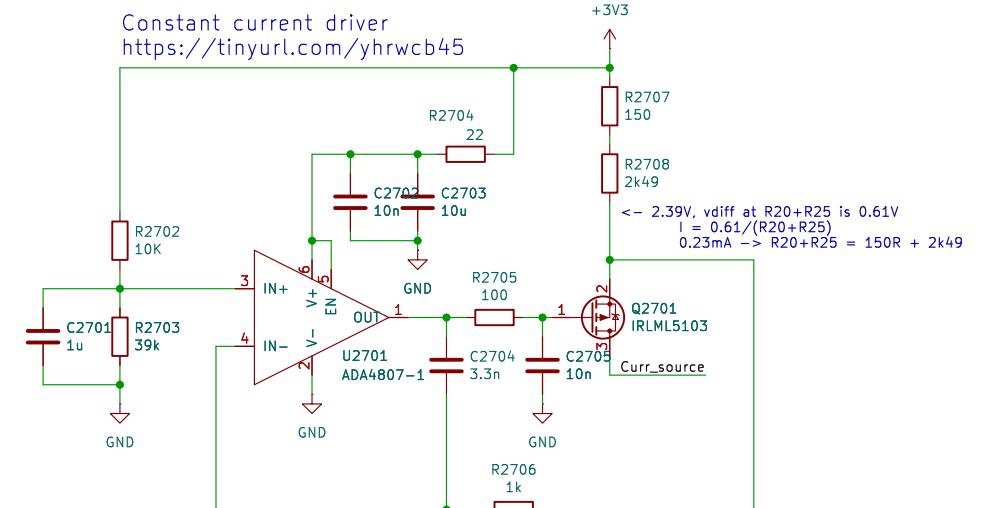
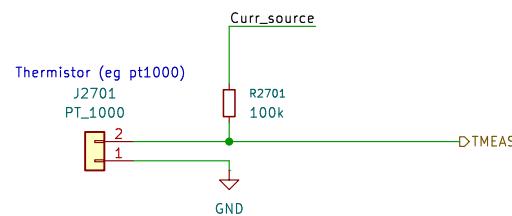


1 2 3 4 5 6

From spacetemp



Sheet: /Solar_input_1/Temp_sens_solar_cell/
File: Temp_sens.kicad_sch

Title:

Size: A4 Date:
KiCad E.D.A. 9.0.4

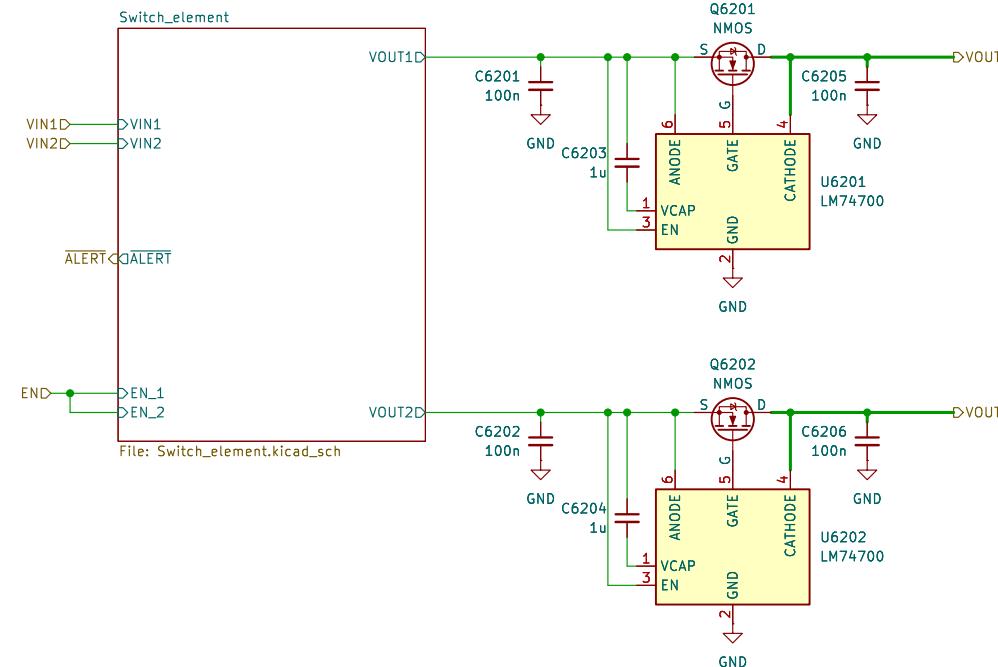
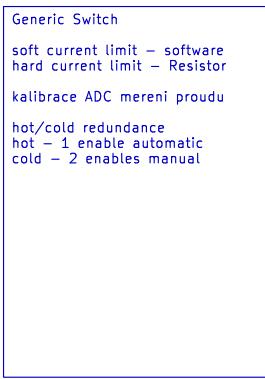
Rev:
Id: 29/107

1 2 3 4 5 6

Inputs	Outputs
Input voltage	Output voltage
Input from CPU	

dedikovaný ideal diode IC

A



Sheet: /Solar_input_1/Switch_SOL_1/
File: Switch_H.kicad_sch

Title:

Size: A4 | Date:
KiCad E.D.A. 9.0.4

Rev:
Id: 64/107

A

A

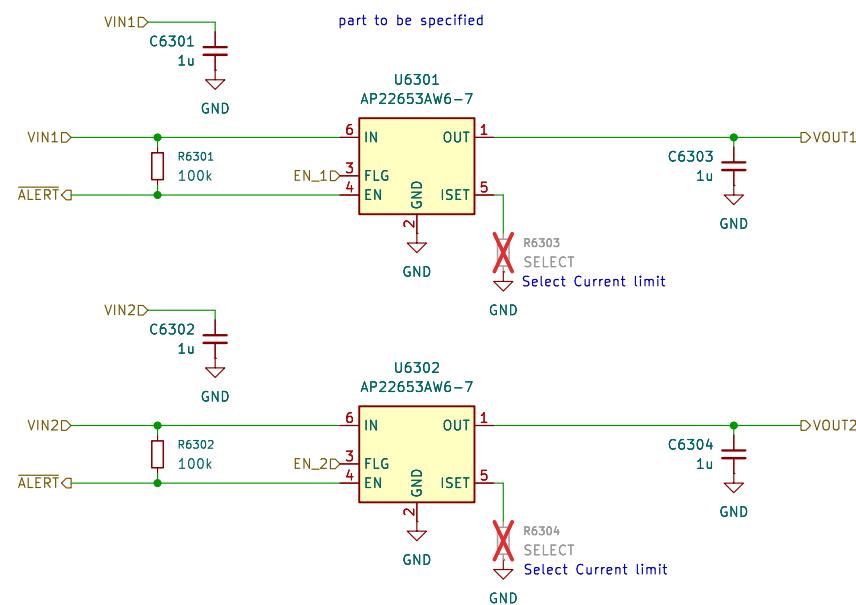
Candidates

6A
TPS281C30ERGWR
TPS25910RSAR
TPS1H200A-Q1 – too much Ron

TPS259802

10A
TPS1685
TPS25983
LTC4226

TPS25983



B

B

C

C

D

D

Sheet: /Solar_input_1/Switch_SOI_1/Switch_element/
File: Switch_element.kicad_sch

Title:

Size: A4 | Date:
KiCad E.D.A. 9.0.4

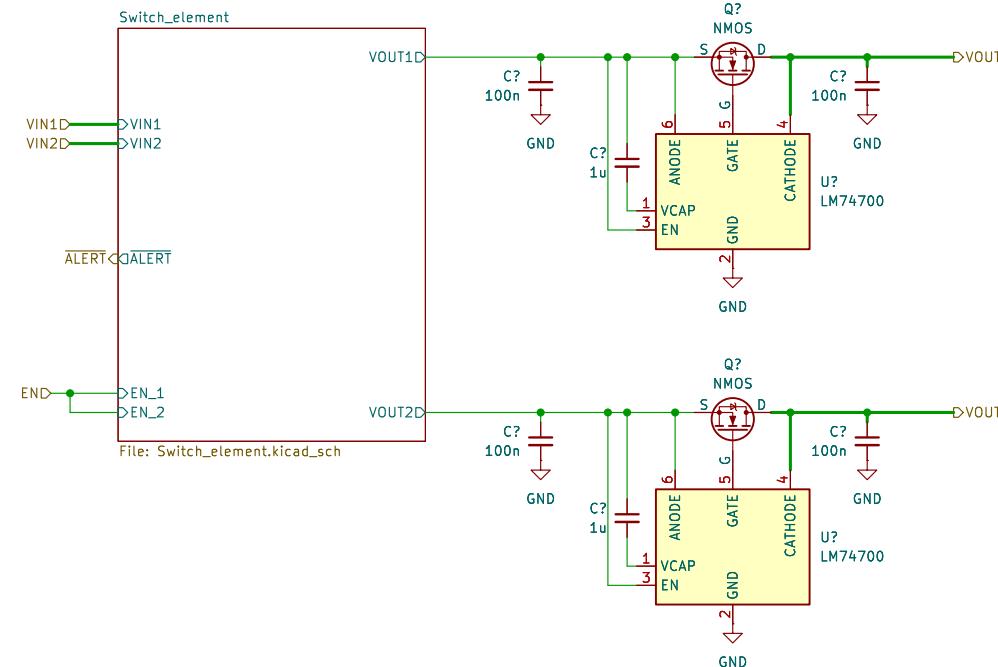
Rev:
Id: 65/107

dedikovaný ideal diode IC

Inputs	Outputs
Input voltage	Output voltage
Input from CPU	

A

Generic Switch
soft current limit – software
hard current limit – Resistor
kalibrace ADC merení proudu
hot/cold redundance
hot – 1 enable automatic
cold – 2 enables manual



B



C

D

Sheet: /Solar_input_1/Switch_SOL_2/
File: Switch_H.kicad_sch

Title:

Size: A4 | Date:
KiCad E.D.A. 9.0.4

Rev:
Id: 70/107

A

A

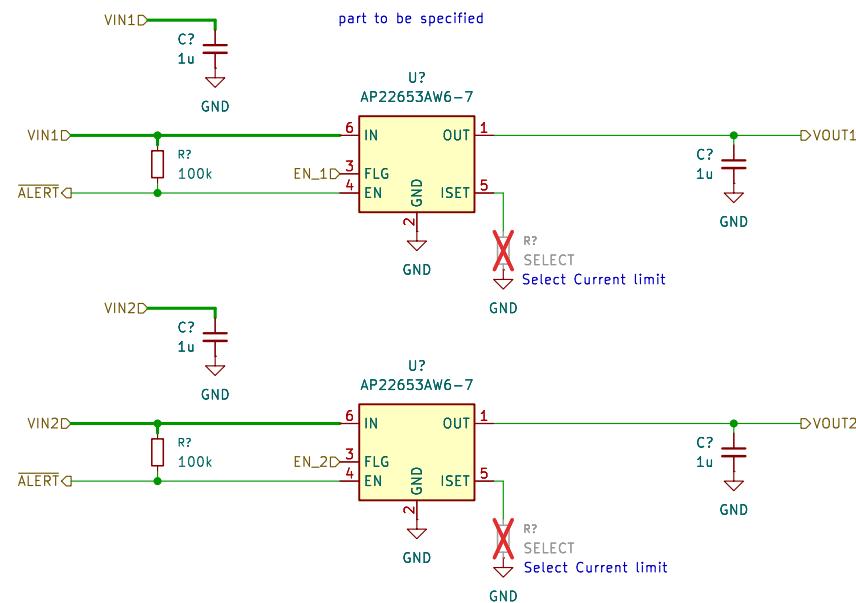
Candidates

6A
TPS281C30ERGWR
TPS25910RSAR
TPS1H200A-Q1 – too much Ron

TPS259802

10A
TPS1685
TPS25983
LTC4226

TPS25983



B

B

C

C

D

D

Sheet: /Solar_input_1/Switch_SOI_2/Switch_element/
File: Switch_element.kicad_sch

Title:

Size: A4 Date:
KiCad E.D.A. 9.0.4

Rev:
Id: 100/107

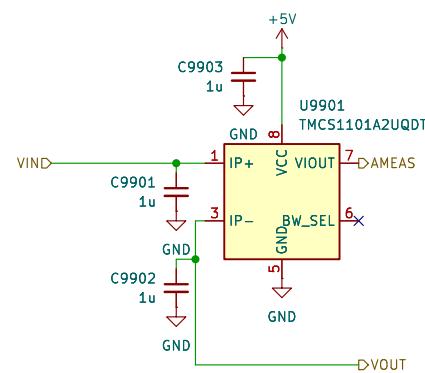
1 2 3 4 5 6

A

B

C

D



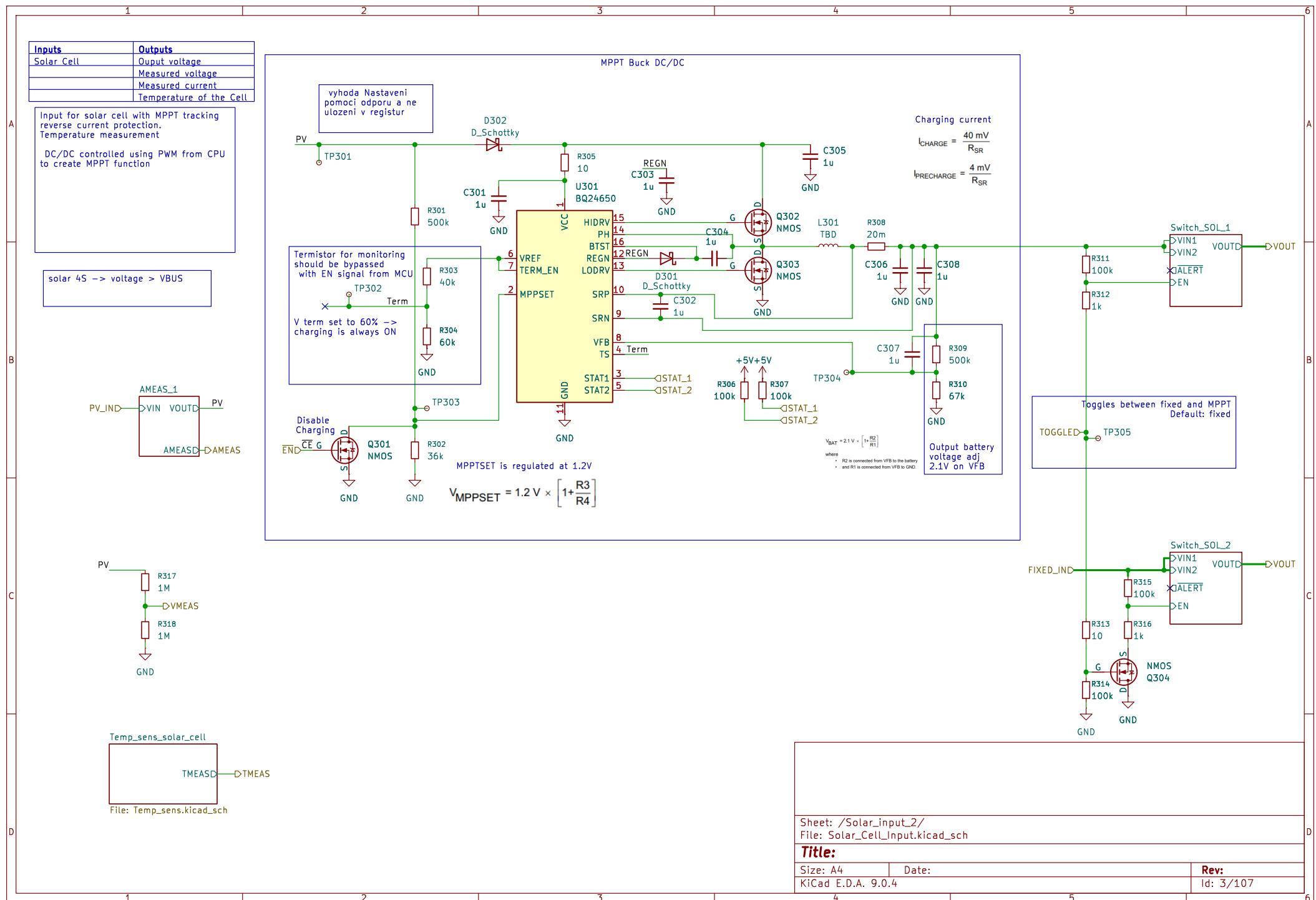
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File: Current_Measure.kicad_sch

Title:

Size: A4 | Date:
KiCad E.D.A. 9.0.4

Rev:
Id: 105/107

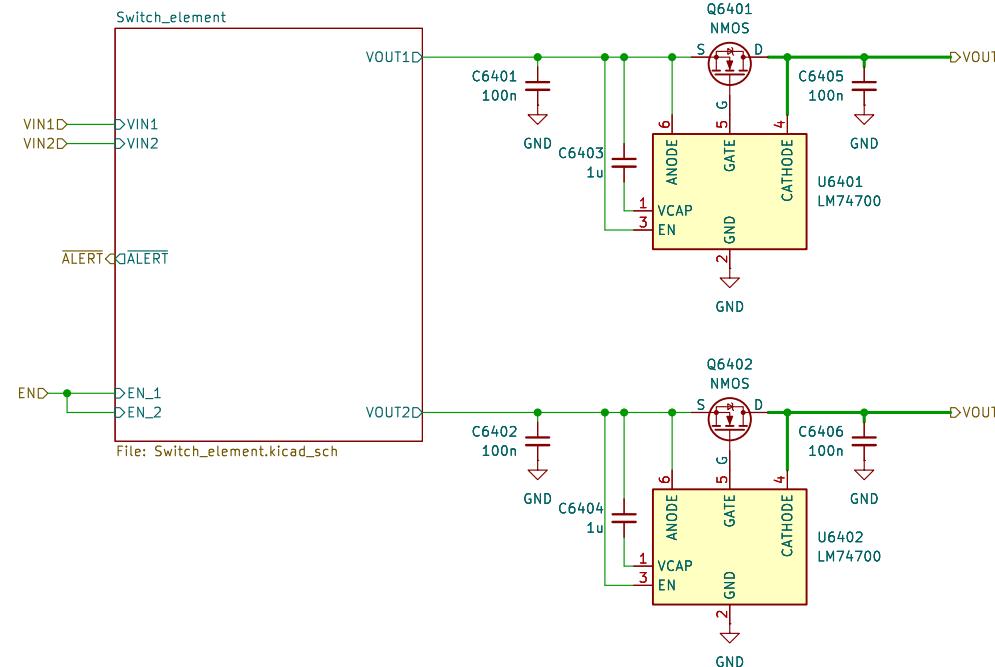
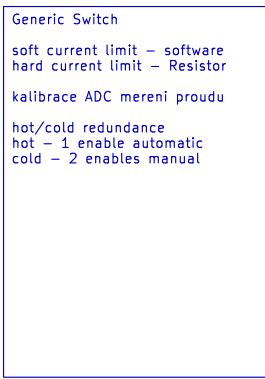
1 2 3 4 5 6



Inputs	Outputs
Input voltage	Output voltage
Input from CPU	

dedikovaný ideal diode IC

A



Sheet: /Solar_input_2/Switch_SOL_1/
File: Switch_H.kicad_sch

Title:

Size: A4 | Date:
KiCad E.D.A. 9.0.4

Rev:
Id: 66/107

A

A

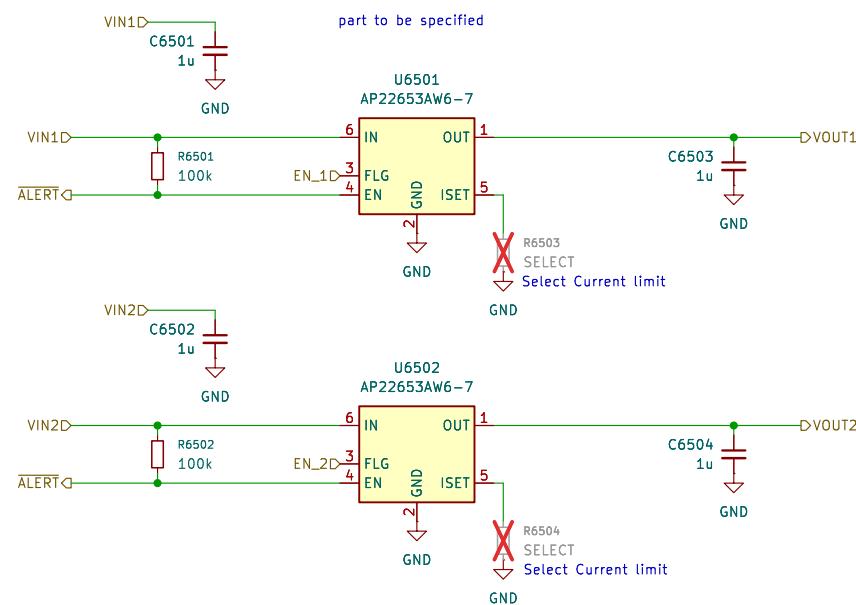
Candidates

6A
TPS281C30ERGWR
TPS25910RSAR
TPS1H200A-Q1 – too much Ron

TPS259802

10A
TPS1685
TPS25983
LTC4226

TPS25983



B

B

C

C

D

D

Sheet: /Solar_input_2/Switch_SOI_1/Switch_element/
File: Switch_element.kicad_sch

Title:

Size: A4 | Date:
KiCad E.D.A. 9.0.4

Rev:
Id: 67/107

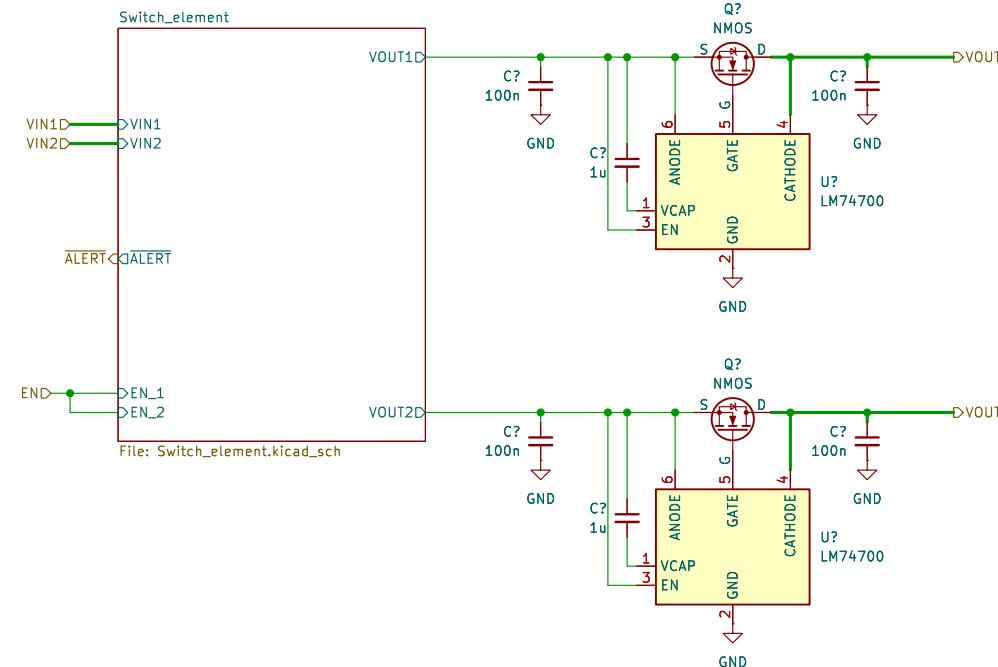
1 2 3 4 5 6

Inputs	Outputs
Input voltage	Output voltage
Input from CPU	

dedikovaný ideal diode IC

A

Generic Switch
soft current limit – software
hard current limit – Resistor
kalibrace ADC merení proudu
hot/cold redundance
hot – 1 enable automatic
cold – 2 enables manual



B

A

B

C

C

D

D

Sheet: /Solar_input_2/Switch_SOL_2/
File: Switch_H.kicad_sch

Title:

Size: A4 Date:
KiCad E.D.A. 9.0.4

Rev:
Id: 72/107

1 2 3 4 5 6

A

A

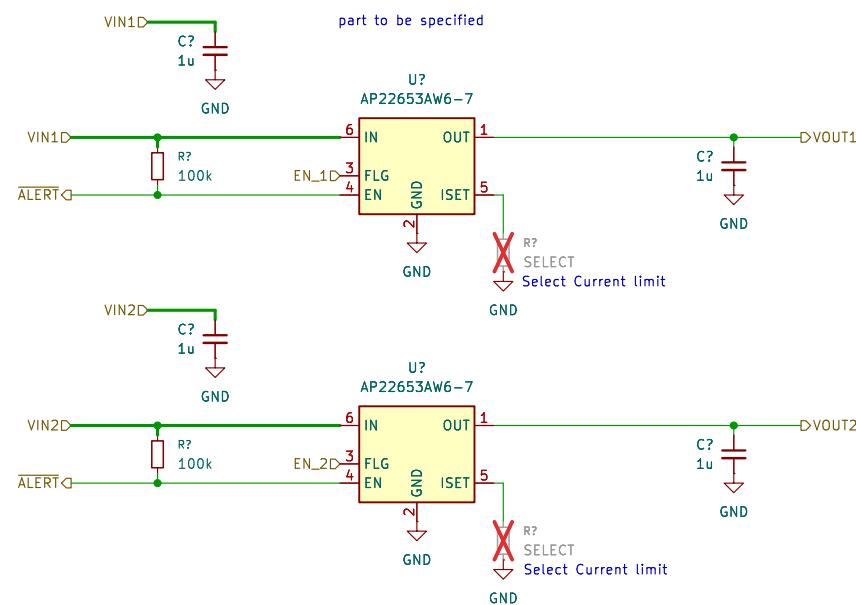
Candidates

6A
TPS281C30ERGWR
TPS25910RSAR
TPS1H200A-Q1 – too much Ron

TPS259802

10A
TPS1685
TPS25983
LTC4226

TPS25983



B

B

C

C

D

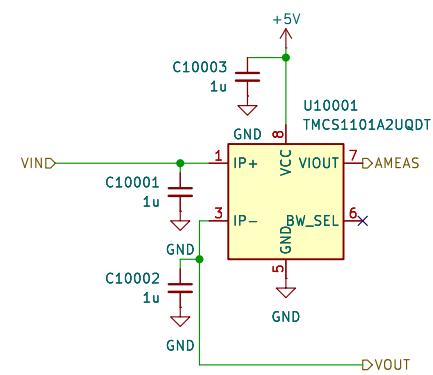
D

Sheet: /Solar_input_2/Switch_SOI_2/Switch_element/
File: Switch_element.kicad_sch

Title:

Size: A4 Date:
KiCad E.D.A. 9.0.4

Rev:
Id: 102/107



Sheet: /Solar_input_2/AMEAS_1/
File: Current_Measure.kicad_sch

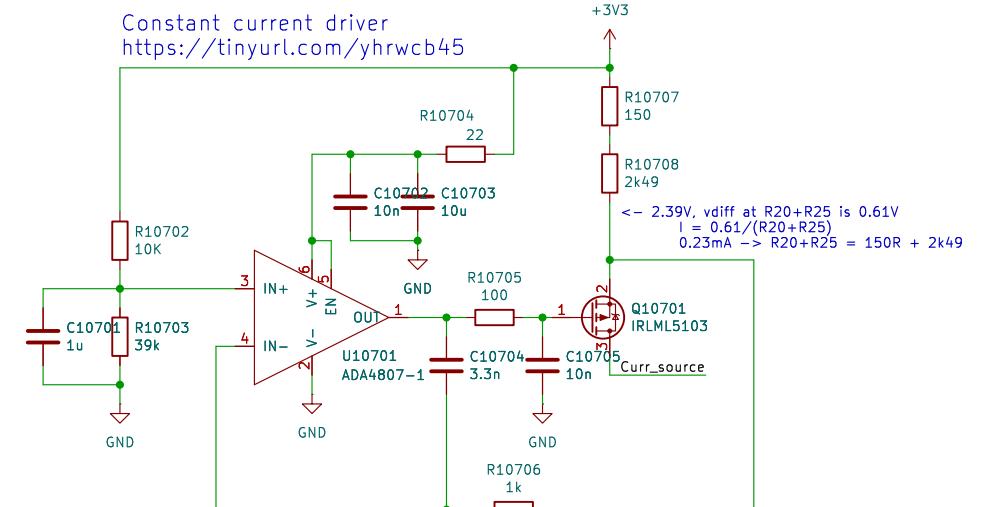
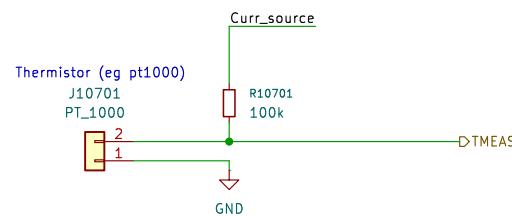
Title:

Size: A4 Date:
KiCad E.D.A. 9.0.4

Rev:
Id: 106/107

1 2 3 4 5 6

From spacetemp



Sheet: /Solar_input_2/Temp_sens_solar_cell/
File: Temp_sens.kicad_sch

Title:

Size: A4 Date:
KiCad E.D.A. 9.0.4

Rev:
Id: 101/107

1 2 3 4 5 6

Inputs	Outputs
Solar Cell	Output voltage
	Measured voltage
	Measured current
	Temperature of the Cell

Input for solar cell with MPPT tracking
reverse current protection.
Temperature measurement

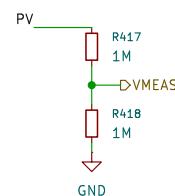
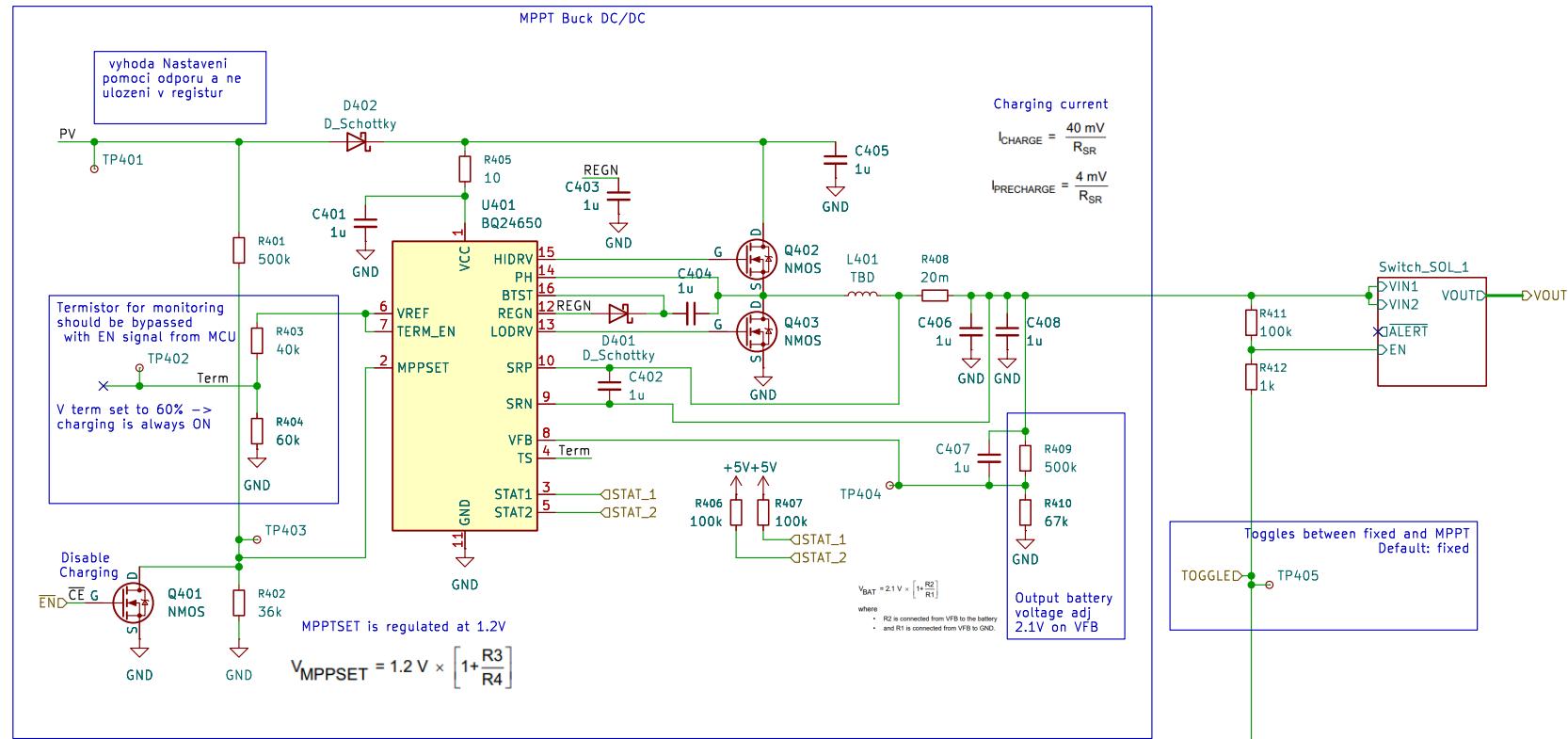
DC/DC controlled using PWM from CPU
to create MPPT function

solar 4S → voltage > VBUS

```

graph LR
    PV_IND((PV_IND)) --> AMEASD[AMEASD]
    VIN((VIN)) --> AMEASD
    VOUTD((VOUTD)) --- PV((PV))
    PV --- AMEASD

```



Temp_sens_solar_cell

File: Temp_sens_kicad.sch

Sheet: /Solar_input_3/
File: Solar_Cell_Input.kicad_sch

Title:

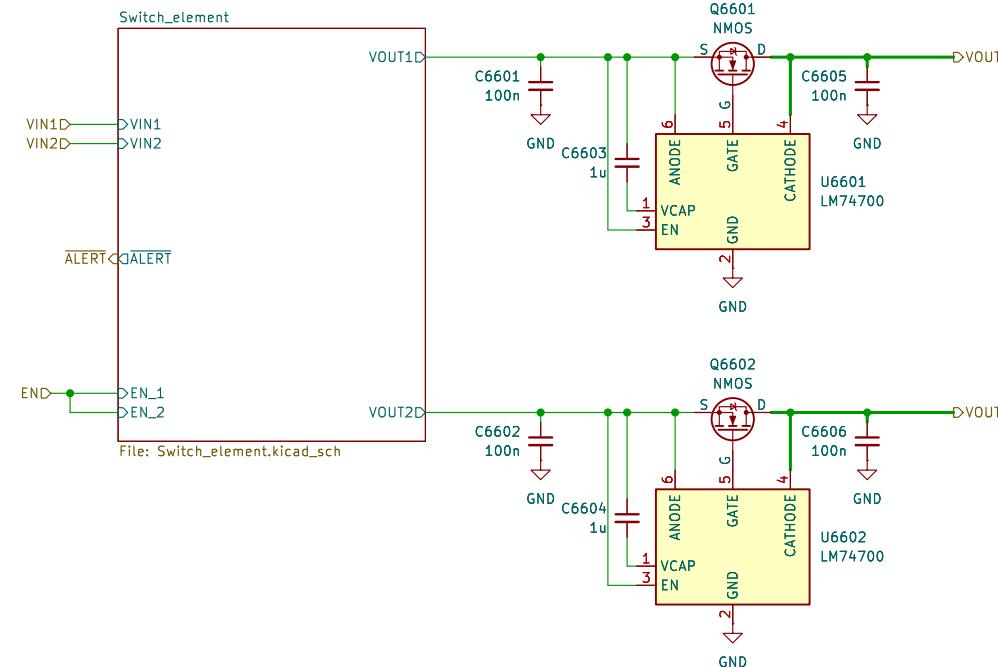
Size: A4 Date:
KiCad E.D.A. 9.0.4

Rev:
Id: 4/107

Inputs	Outputs
Input voltage	Output voltage
Input from CPU	

dedikovaný ideal diode IC

A



Sheet: /Solar_input_3/Switch_SOL_1/
File: Switch_H.kicad_sch

Title:

Size: A4 | Date:
KiCad E.D.A. 9.0.4

Rev:
Id: 68/107

A

A

B

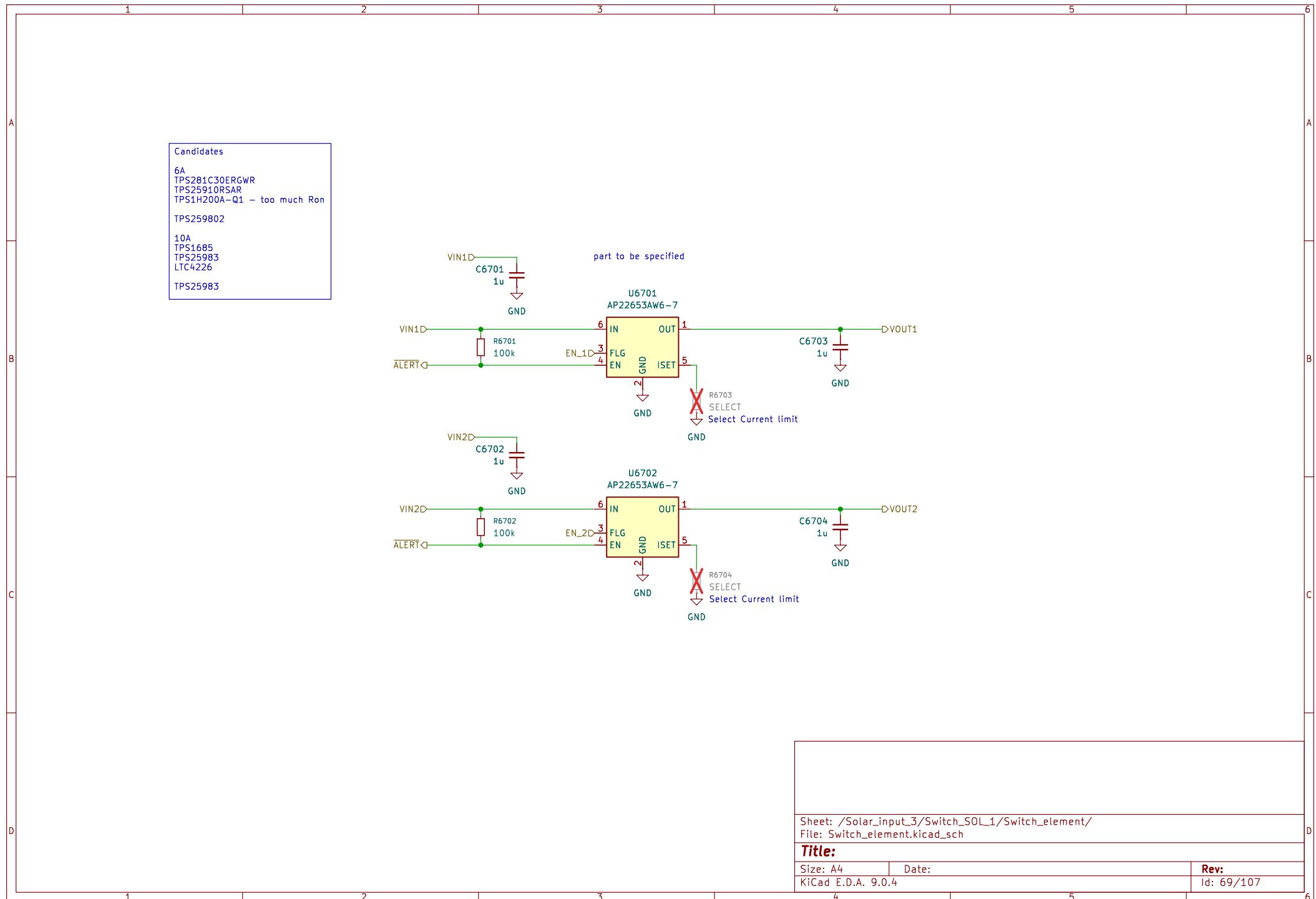
B

C

C

D

D

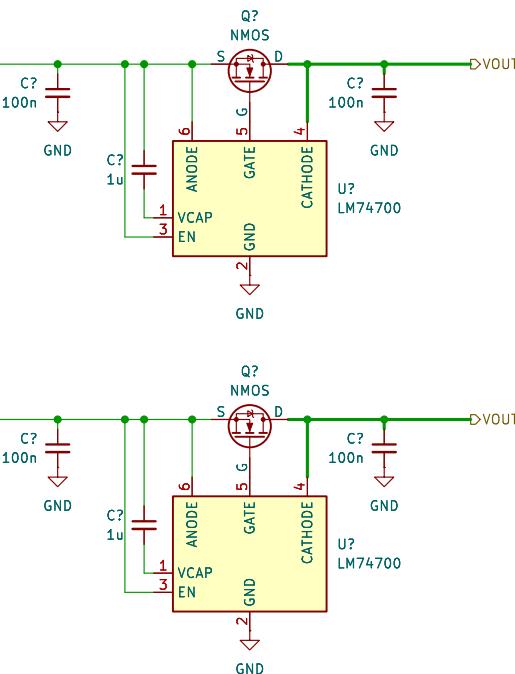
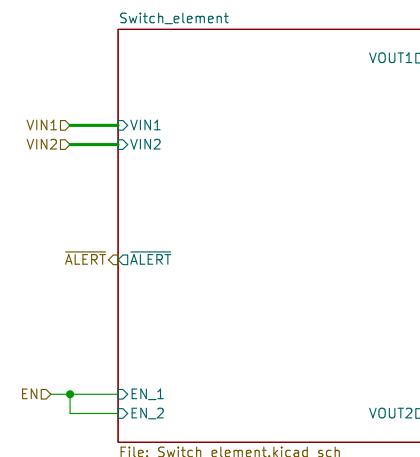
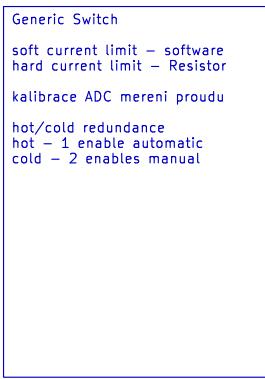


1 2 3 4 5 6

Inputs	Outputs
Input voltage	Output voltage
Input from CPU	

dedikovaný ideal diode IC

A



Sheet: /Solar_input_3/Switch_SOL_2/
File: Switch_H.kicad_sch

Title:

Size: A4 Date:
KiCad E.D.A. 9.0.4

Rev:
Id: 74/107

B

A

C

B

D

C

1 2 3 4 5 6

A

A

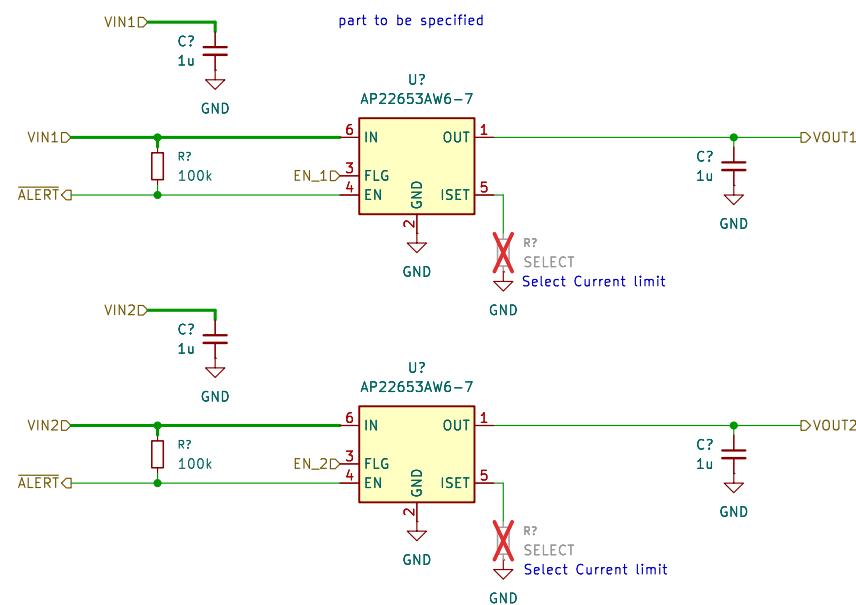
Candidates

6A
TPS281C30ERGWR
TPS25910RSAR
TPS1H200A-Q1 – too much Ron

TPS259802

10A
TPS1685
TPS25983
LTC4226

TPS25983



B

B

C

C

D

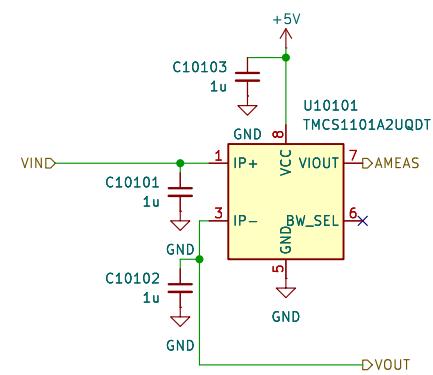
D

Sheet: /Solar_input_3/Switch_SOI_2/Switch_element/
File: Switch_element.kicad_sch

Title:

Size: A4 Date:
KiCad E.D.A. 9.0.4

Rev:
Id: 104/107

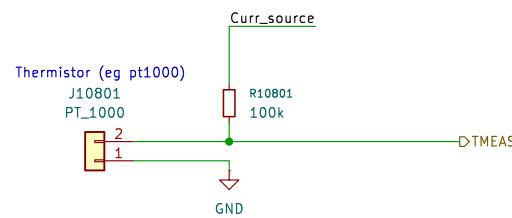


Sheet: /Solar_input_3/AMEAS_1/
File: Current_Measure.kicad_sch

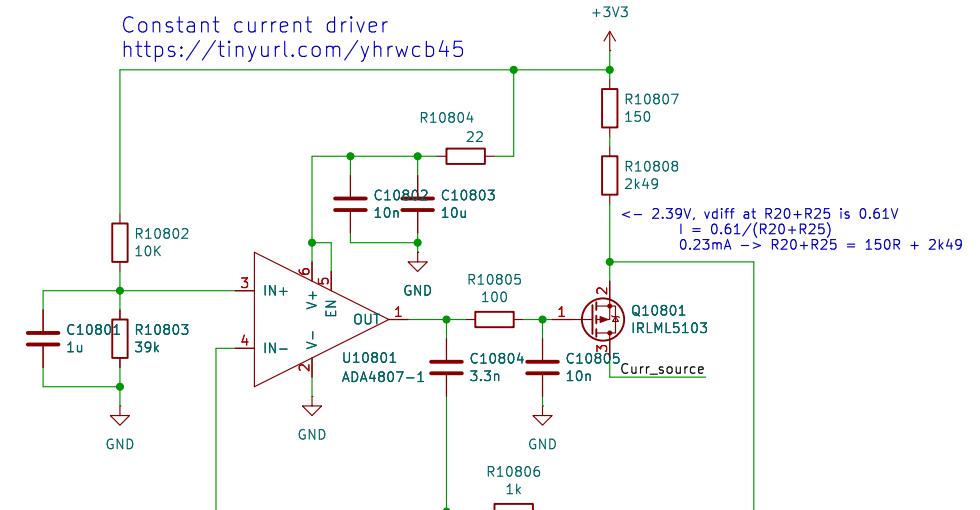
Title:

Size: A4 Date:
KiCad E.D.A. 9.0.4

Rev:
Id: 107/107



From spacetime



Sheet: /Solar_input_3/Temp_sens_solar_cell/
File: Temp_sens.kicad_sch

Title:

Size: A4 Date
KiCad E.D.A. 9.0.4

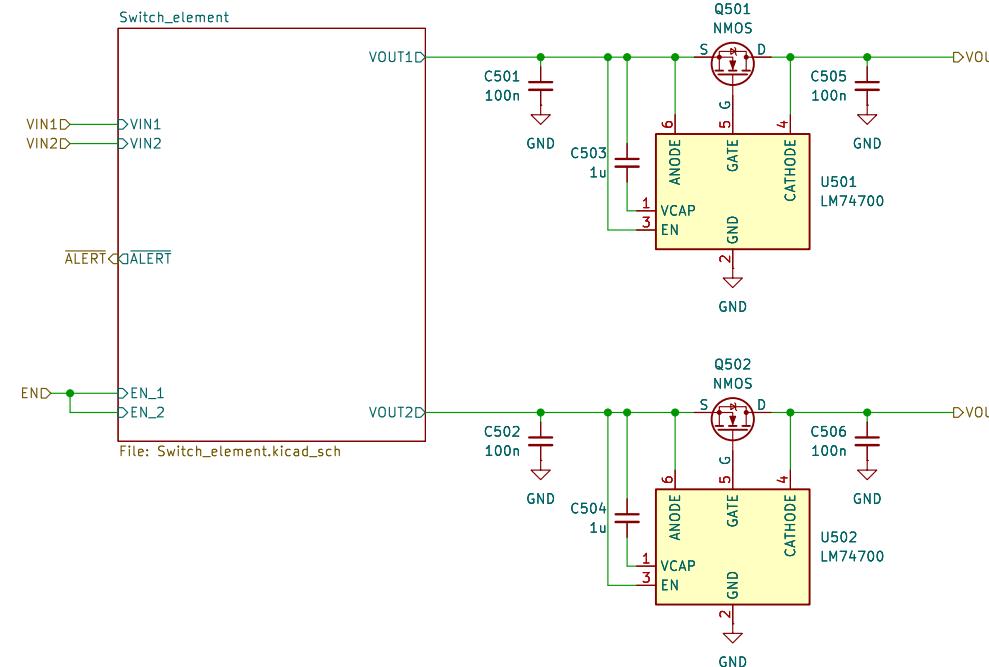
Rev:
Id: 103/107

dedikovaný ideal diode IC

Inputs	Outputs
Input voltage	Output voltage
Input from CPU	

A

Generic Switch
soft current limit – software
hard current limit – Resistor
kalibrace ADC merení proudu
hot/cold redundance
hot – 1 enable automatic
cold – 2 enables manual



B



C

Sheet: /Switch_BATT_1/
File: Switch_H.kicad_sch

Title:

Size: A4 | Date:
KiCad E.D.A. 9.0.4

Rev:
Id: 5/107

A

A

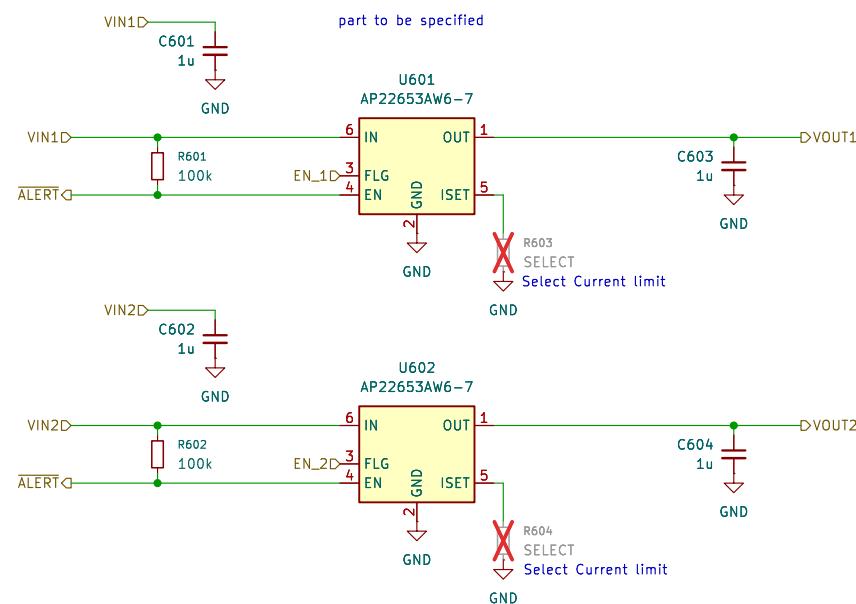
Candidates

6A
TPS281C30ERGWR
TPS25910RSAR
TPS1H200A-Q1 – too much Ron

TPS259802

10A
TPS1685
TPS25983
LTC4226

TPS25983



B

B

C

C

D

D

Sheet: /Switch_BATT_1/Switch_element/
File: Switch_element.kicad_sch

Title:

Size: A4 | Date:
KiCad E.D.A. 9.0.4

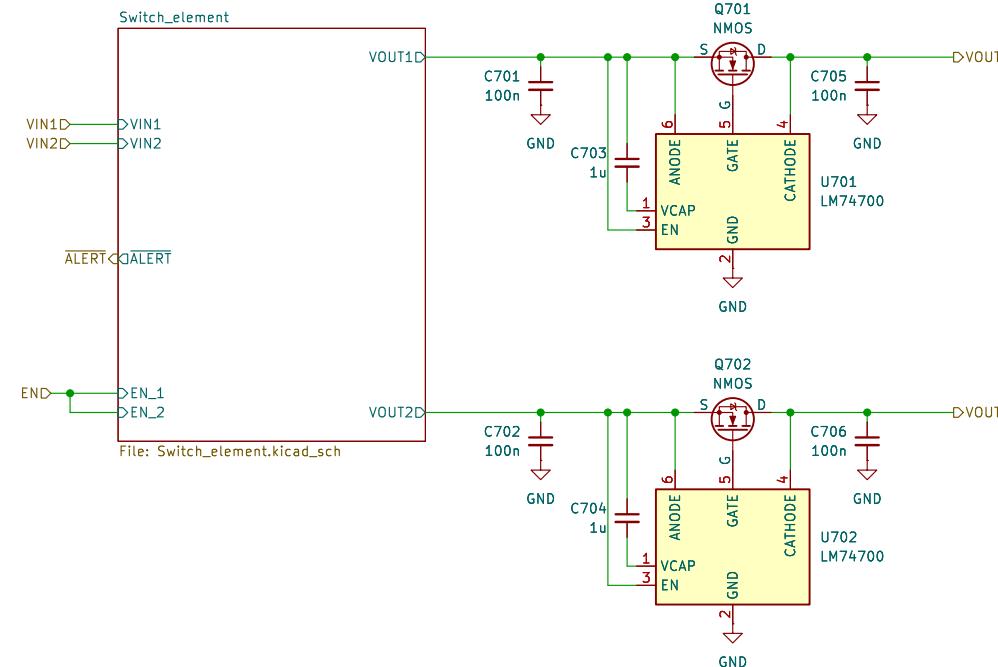
Rev:
Id: 6/107

dedikovaný ideal diode IC

Inputs	Outputs
Input voltage	Output voltage
Input from CPU	

A

Generic Switch
soft current limit – software
hard current limit – Resistor
kalibrace ADC merení proudu
hot/cold redundancy
hot – 1 enable automatic
cold – 2 enables manual



B

Sheet: /Switch_BATT_2/
File: Switch_H.kicad_sch

Title:
Size: A4 Date:
KiCad E.D.A. 9.0.4 Rev:
Id: 7/107

A

A

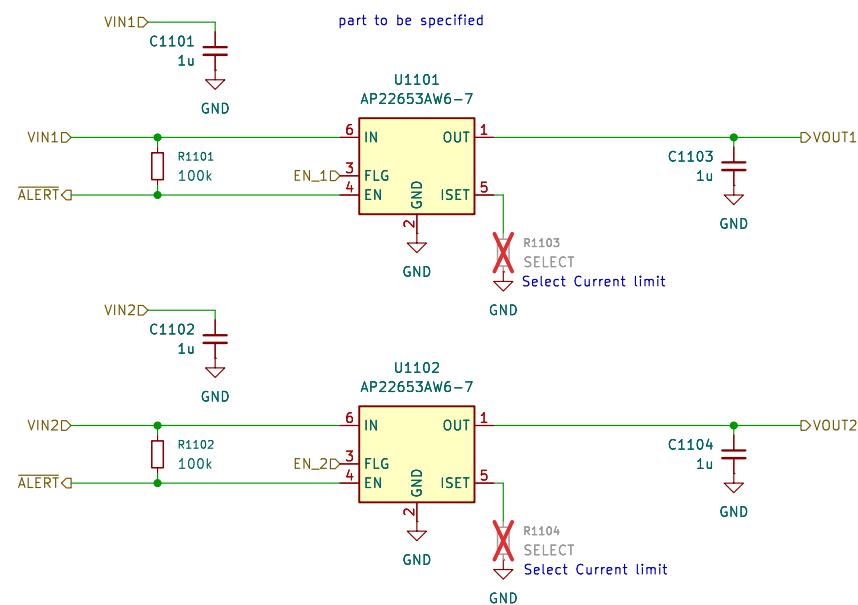
Candidates

6A
TPS281C30ERGWR
TPS25910RSAR
TPS1H200A-Q1 – too much Ron

TPS259802

10A
TPS1685
TPS25983
LTC4226

TPS25983



B

B

C

C

D

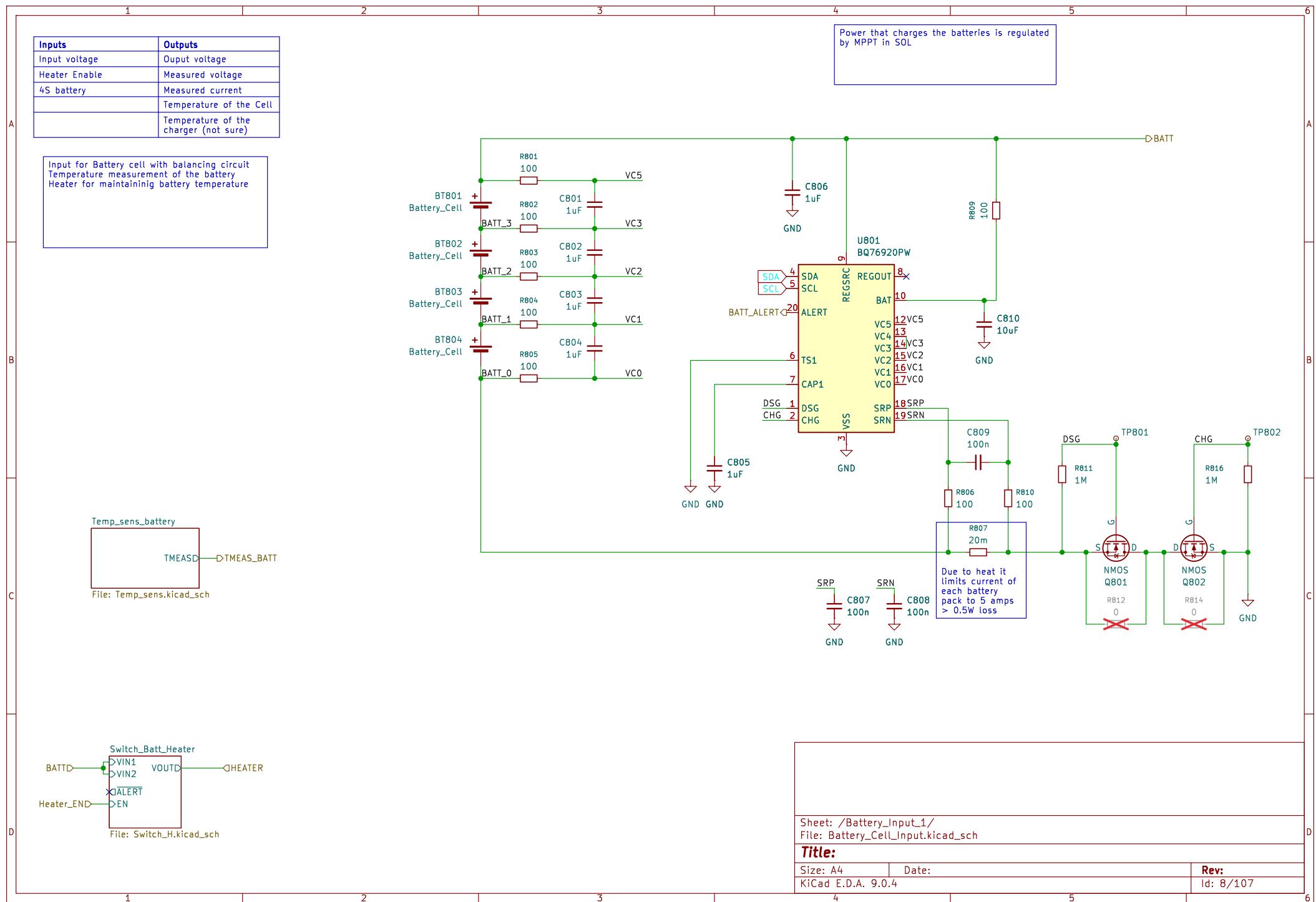
D

Sheet: /Switch_BATT_2/Switch_element/
File: Switch_element.kicad_sch

Title:

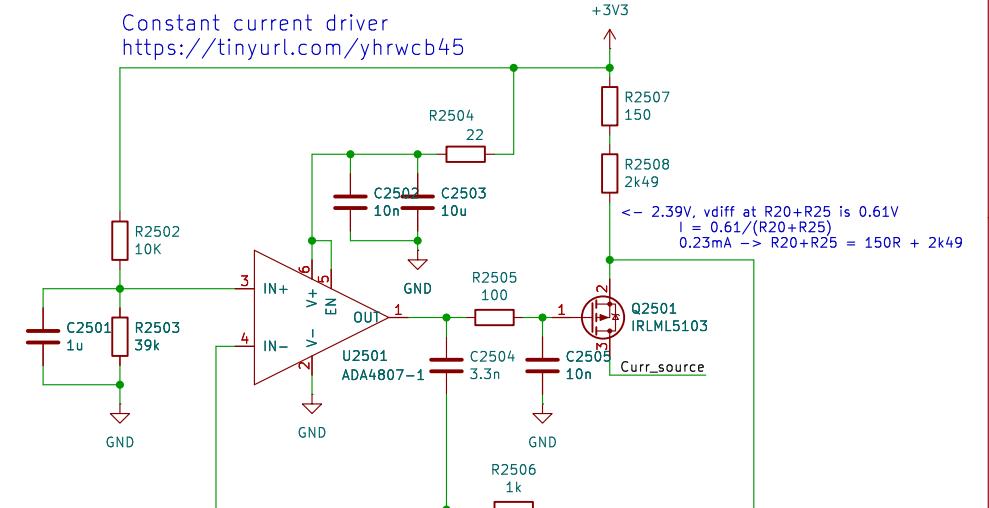
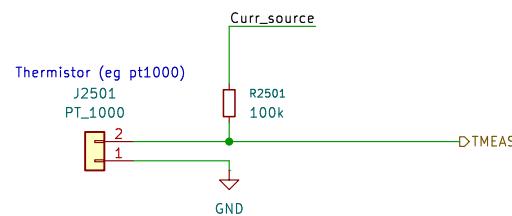
Size: A4 | Date:
KiCad E.D.A. 9.0.4

Rev:
Id: 11/107



1 2 3 4 5 6

From spacetemp



Sheet: /Battery_Input_1/Temp_sens_battery/
File: Temp_sens.kicad_sch

Title:

Size: A4 Date:
KiCad E.D.A. 9.0.4

Rev:
Id: 27/107

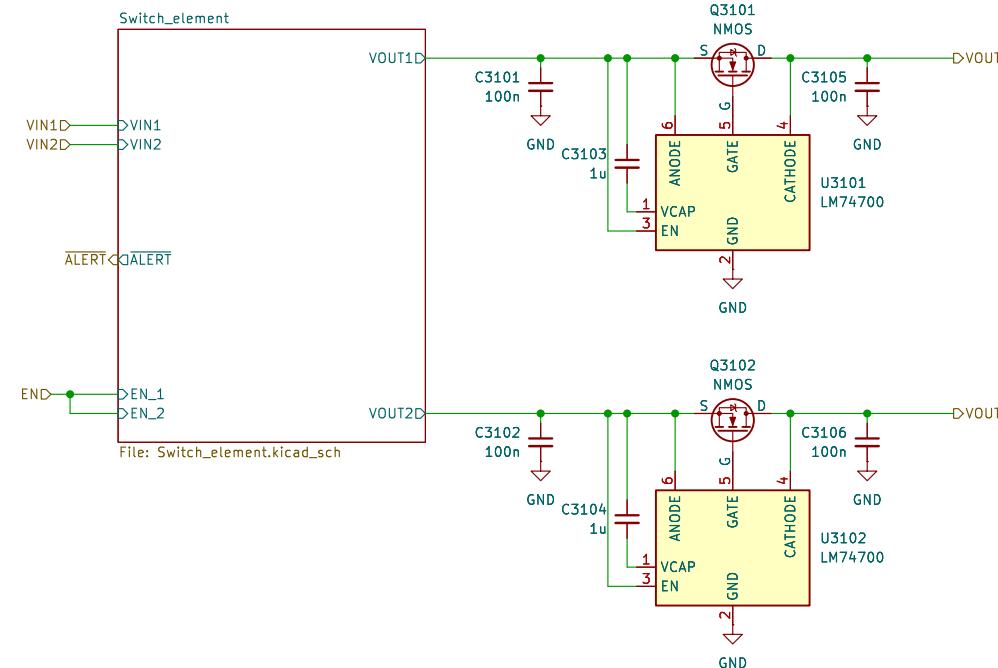
1 2 3 4 5 6

Inputs	Outputs
Input voltage	Output voltage
Input from CPU	

dedikovaný ideal diode IC

A

Generic Switch
soft current limit – software
hard current limit – Resistor
kalibrace ADC merení proudu
hot/cold redundancy
hot – 1 enable automatic
cold – 2 enables manual



B

A

B

C

C

D

D

Sheet: /Battery_Input_1/Switch_Batt_Heater/
File: Switch_H.kicad_sch

Title:

Size: A4 | Date:
KiCad E.D.A. 9.0.4

Rev:
Id: 33/107

A

A

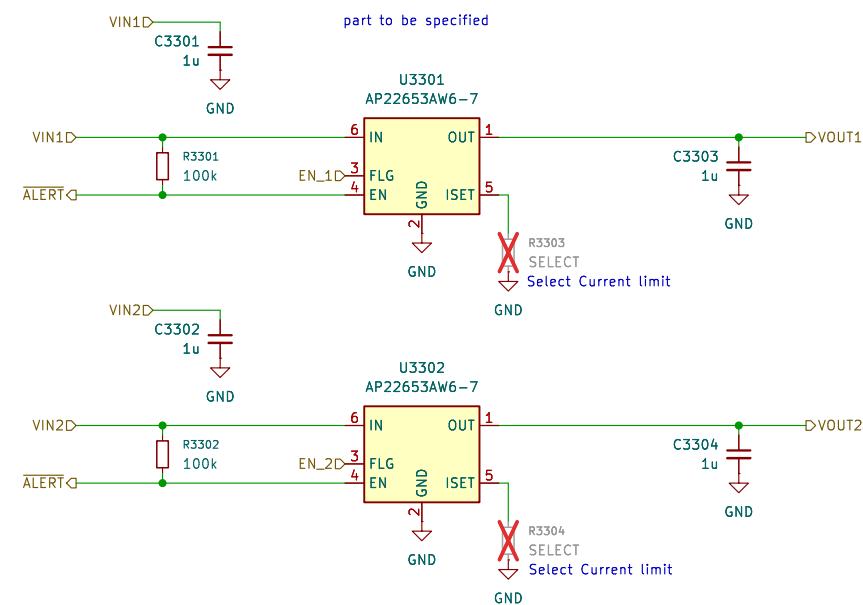
Candidates

6A
TPS281C30ERGWR
TPS25910RSAR
TPS1H200A-Q1 – too much Ron

TPS259802

10A
TPS1685
TPS25983
LTC4226

TPS25983



B

B

C

C

D

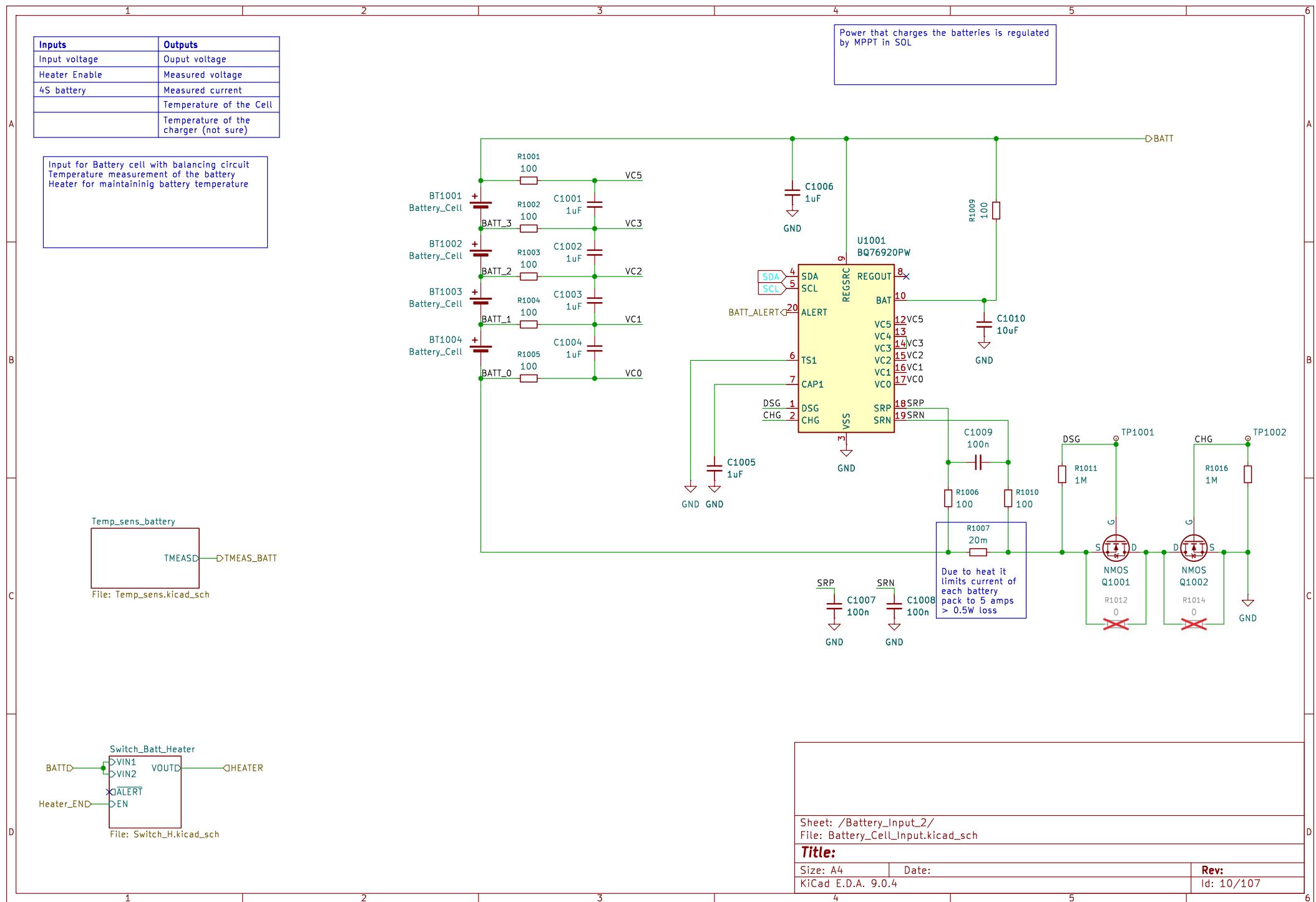
D

Sheet: /Battery_Input_1/Switch_Batt_Heater/Switch_element/
File: Switch_element.kicad_sch

Title:

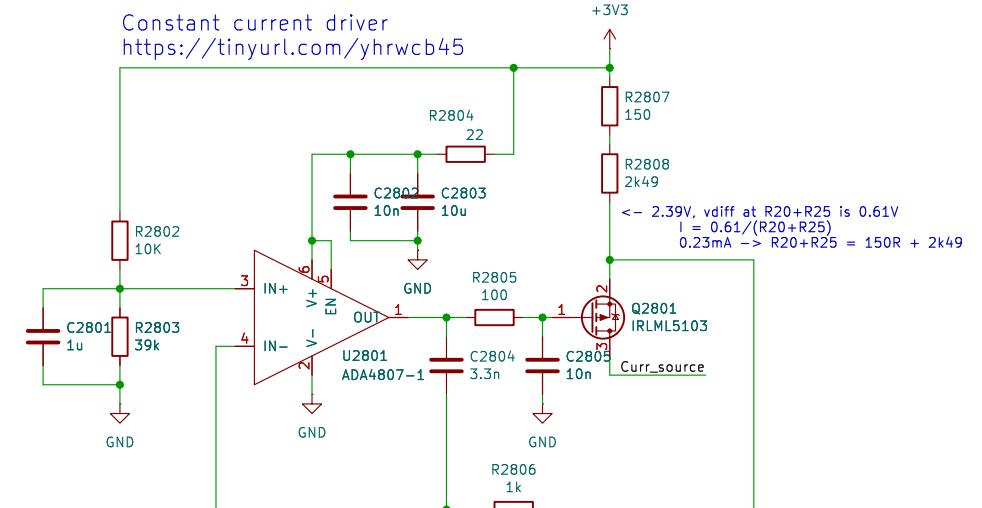
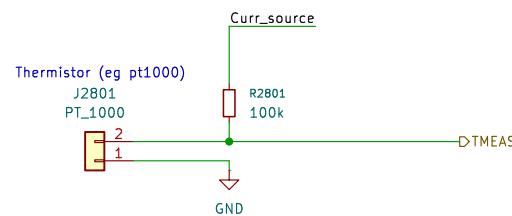
Size: A4 | Date:
KiCad E.D.A. 9.0.4

Rev:
Id: 35/107



1 2 3 4 5 6

From spacetemp



Sheet: /Battery_Input_2/Temp_sens_battery/
File: Temp_sens.kicad_sch

Title:

Size: A4 Date:
KiCad E.D.A. 9.0.4

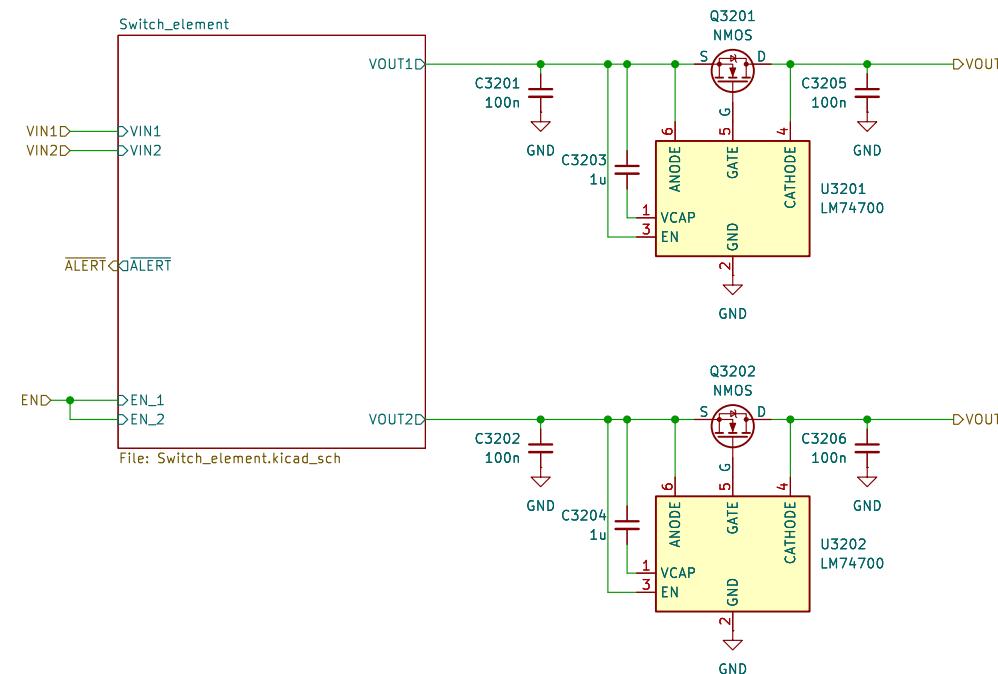
Rev:
Id: 30/107

1 2 3 4 5 6

Inputs	Outputs
Input voltage	Output voltage
Input from CPU	

dedikovaný ideal diode IC

Generic Switch
soft current limit – software
hard current limit – Resistor
kalibrace ADC merení proudu
hot/cold redundancy
hot – 1 enables automatic
cold – 2 enables manual



Sheet: /Battery_Input_2/Switch_Batt_Heater/
File: Switch_H.kicad_sch

Title:

Size: A4 Date:
KiCad E.D.A. 9.0.4

Rev:
Id: 34/107

A

A

Candidates

6A
TPS281C30ERGWR
TPS25910RSAR
TPS1H200A-Q1 – too much Ron

TPS259802

10A
TPS1685
TPS25983
LTC4226

TPS25983

B

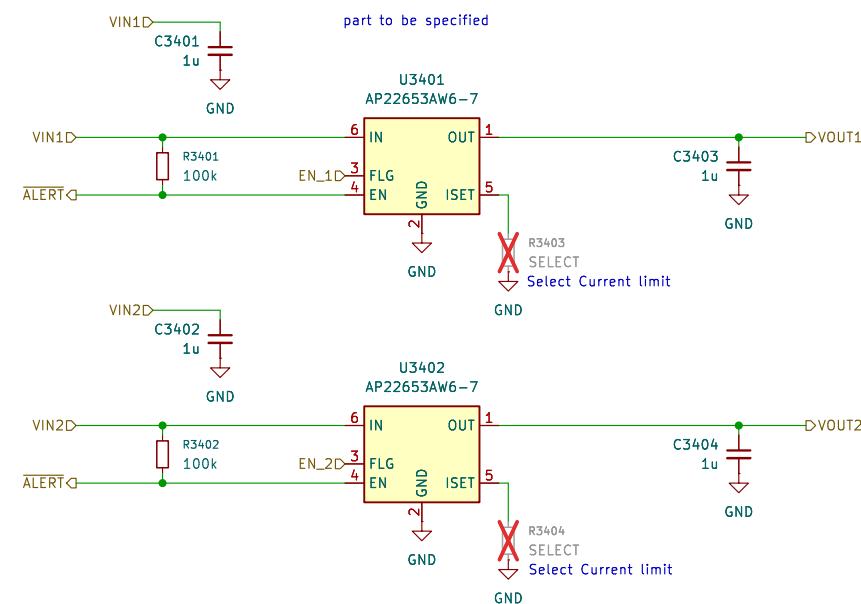
B

C

C

D

D



Sheet: /Battery_Input_2/Switch_Batt_Heater/Switch_element/
File: Switch_element.kicad_sch

Title:

Size: A4 | Date:
KiCad E.D.A. 9.0.4

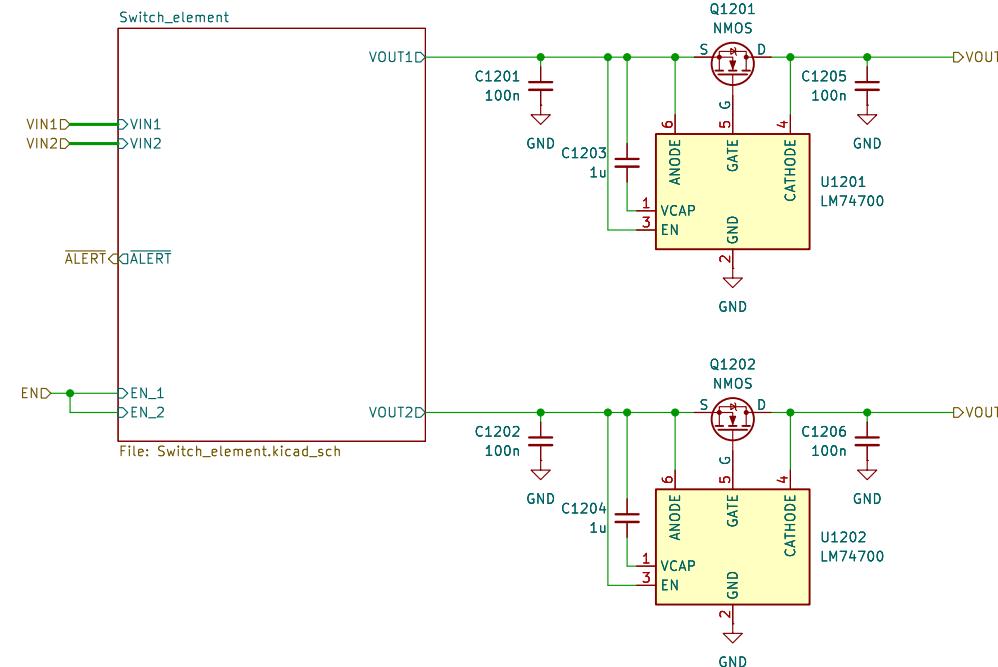
Rev:
Id: 36/107

Inputs	Outputs
Input voltage	Output voltage
Input from CPU	

dedikovaný ideal diode IC

A

Generic Switch
soft current limit – software
hard current limit – Resistor
kalibrace ADC merení proudu
hot/cold redundance
hot – 1 enable automatic
cold – 2 enables manual


Sheet: /Switch_Deploy_BUS/
File: Switch_H.kicad_sch
Title:
Size: A4 | Date:
KiCad E.D.A. 9.0.4

Rev:
Id: 12/107

B

A

C

B

C

C

D

D

A

A

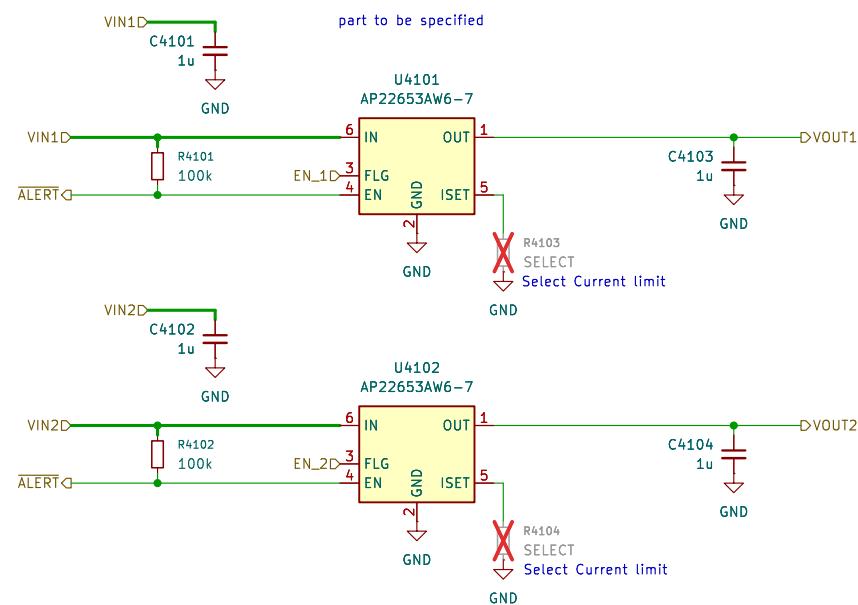
Candidates

6A
TPS281C30ERGWR
TPS25910RSAR
TPS1H200A-Q1 – too much Ron

TPS259802

10A
TPS1685
TPS25983
LTC4226

TPS25983



B

B

C

C

D

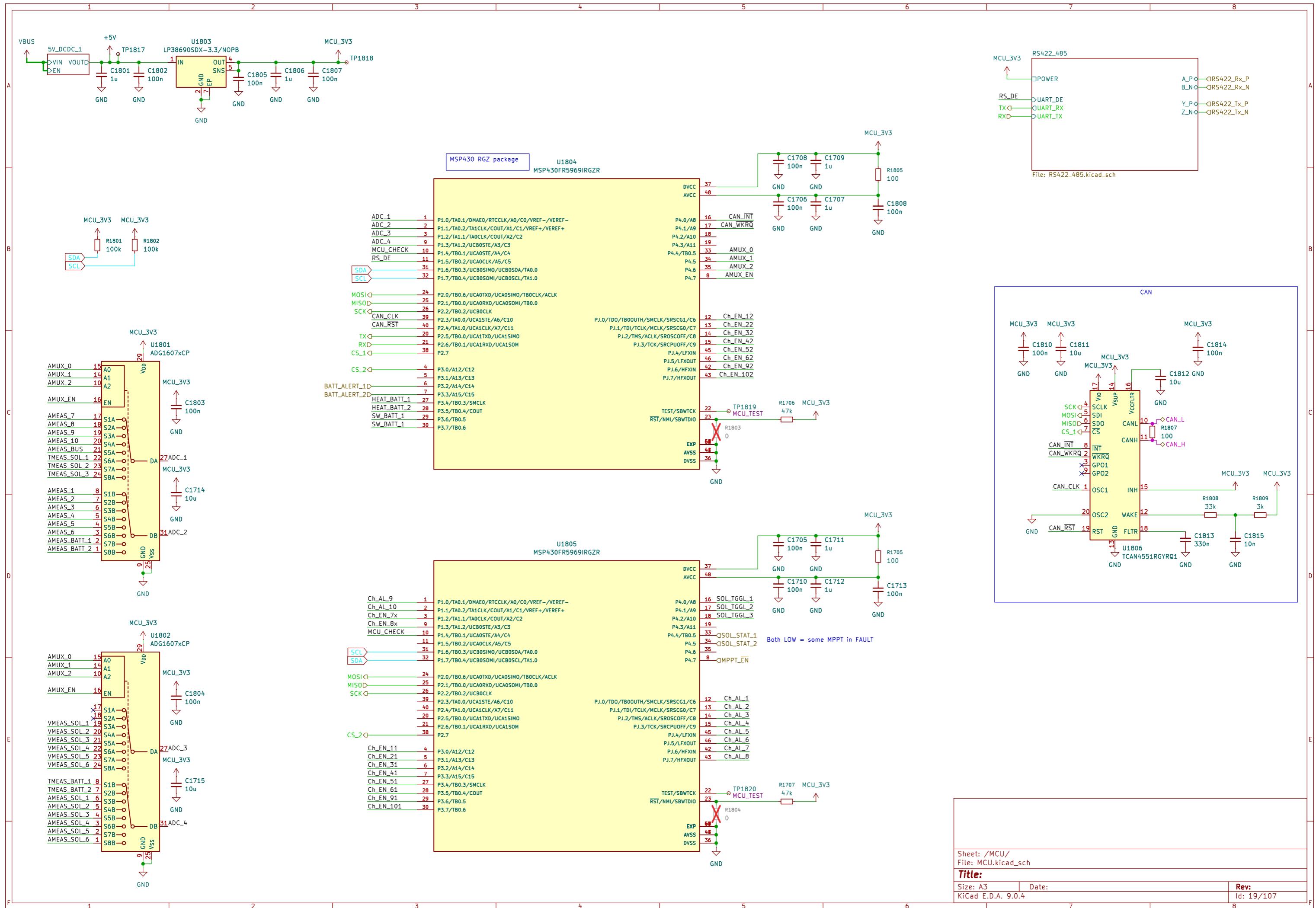
D

Sheet: /Switch_Deploy_BUS/Switch_element/
File: Switch_element.kicad_sch

Title:

Size: A4 Date:
KiCad E.D.A. 9.0.4

Rev:
Id: 43/107



A

A

Inputs	Outputs
BUS Voltage	5V

2A

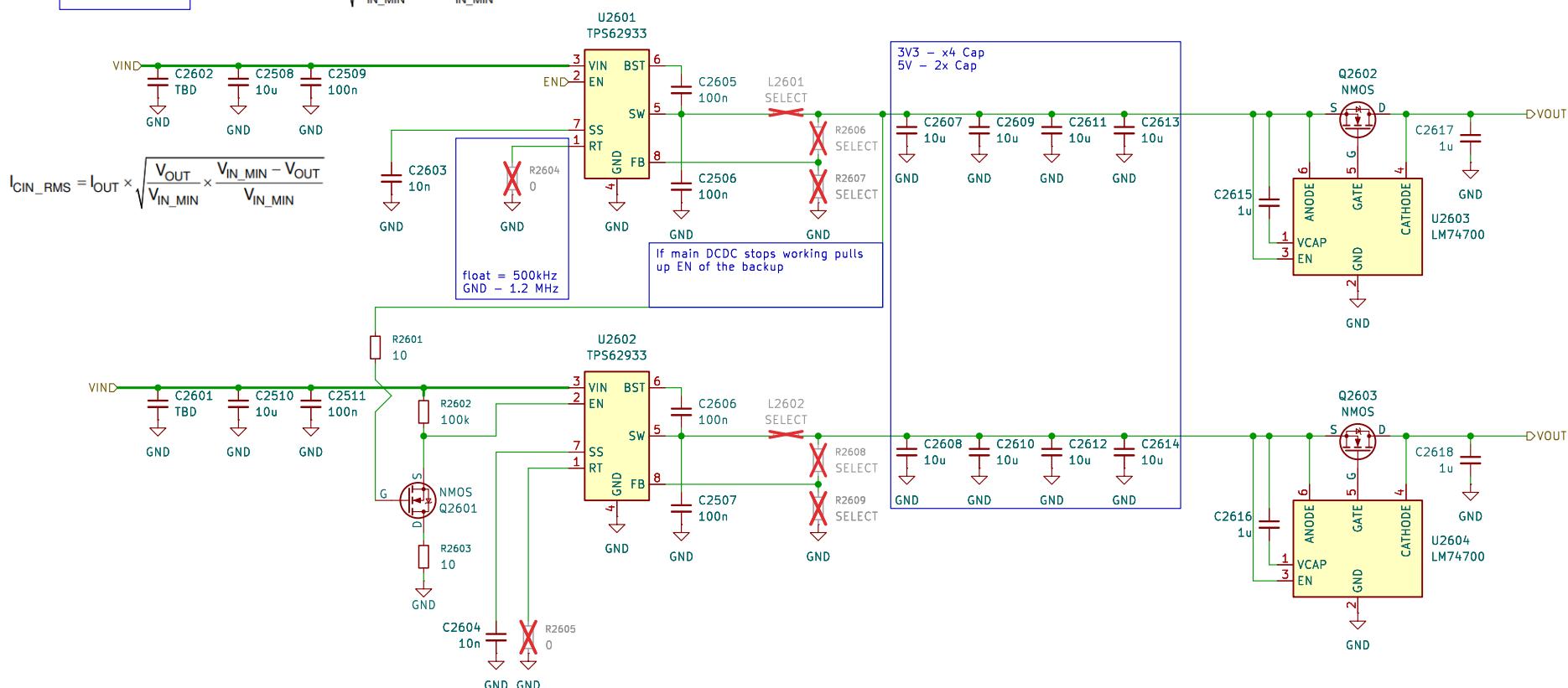
$$I_{CIN_RMS} = I_{OUT} \times \sqrt{\frac{V_{IN_MIN} - V_{OUT}}{V_{IN_MIN}}} \times \frac{V_{IN_MIN} - V_{OUT}}{V_{IN_MIN}}$$

Use Rxx03 and Rxx00 to select output voltage

Output voltage
5V
10000*(5V-0.8)/0.8 => Rxx03,Rxx00 =
52500

B

B



D

D

Sheet: /MCU/5V_DCDC_1/
File: DCDC_ADJUSTABLE.kicad_sch

Title:

Size: A4 | Date:
KiCad E.D.A. 9.0.4

Rev:
Id: 28/107

A

A

B

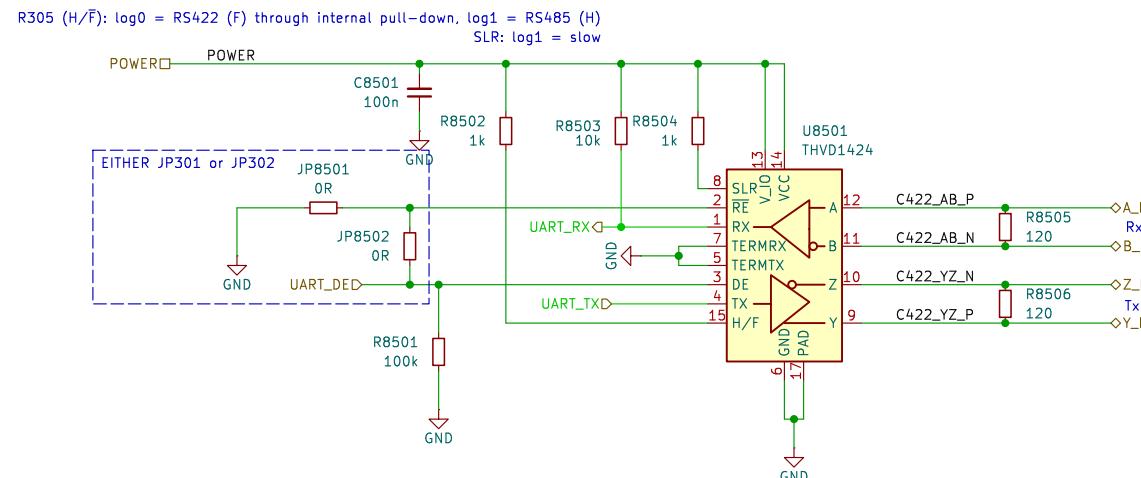
B

C

C

D

D



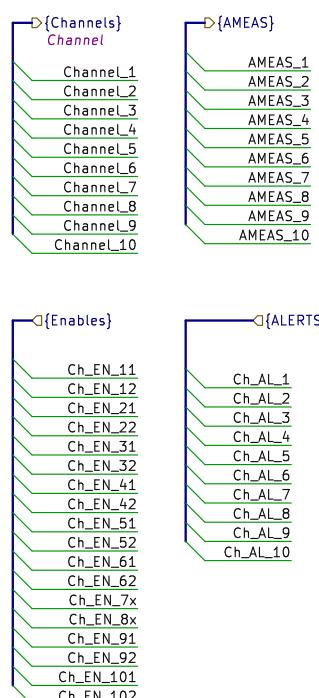
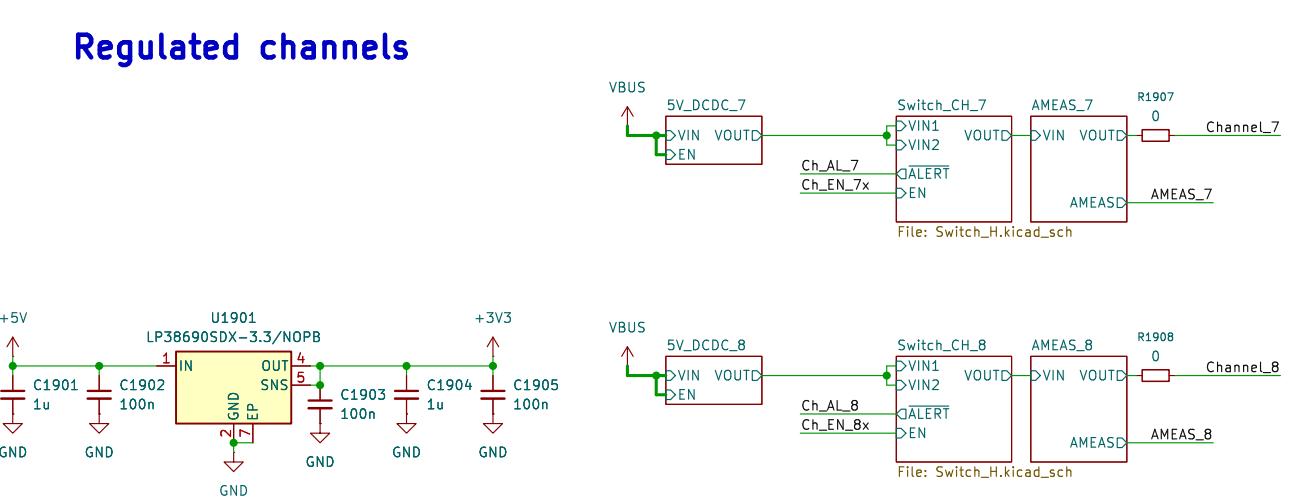
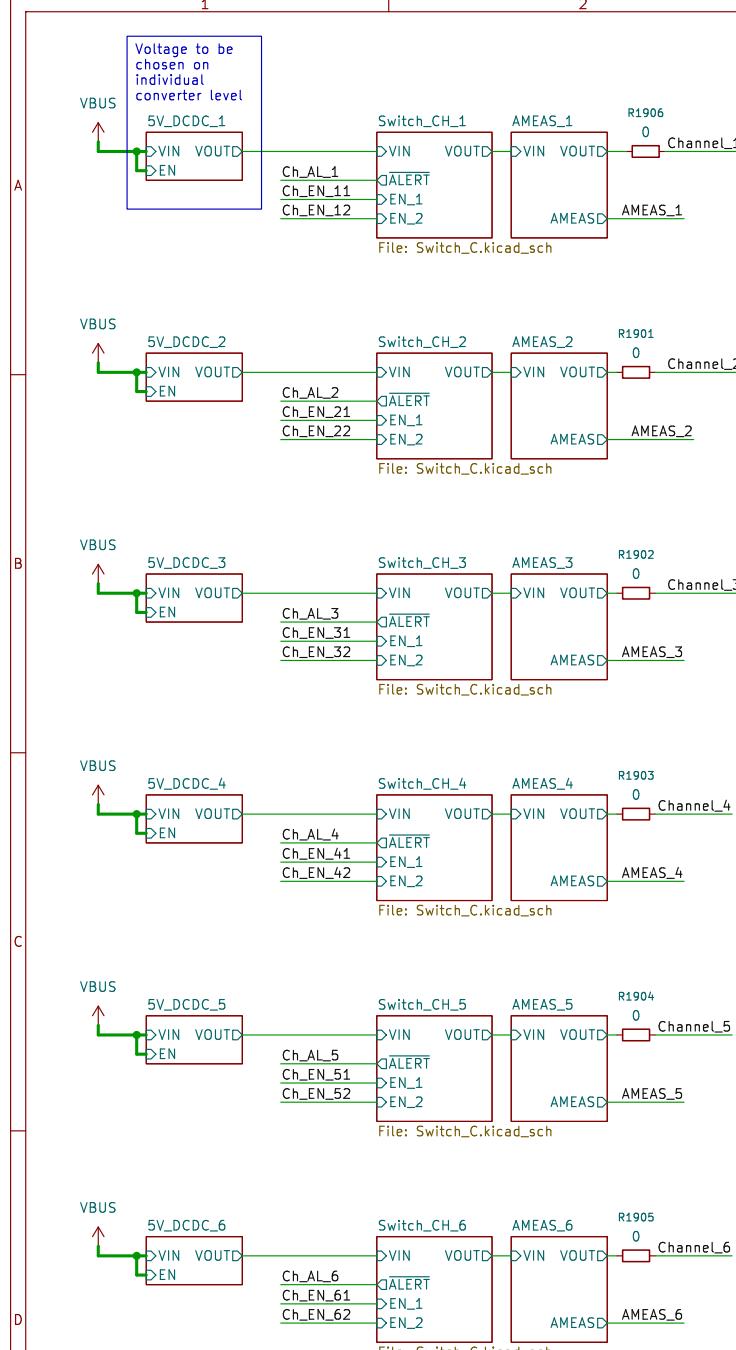
Sheet: /MCU/RS422_485/
File: RS422_485.kicad_sch

Title:

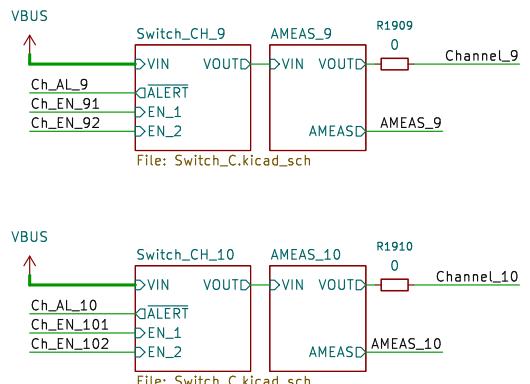
Size: A4 | Date:
KiCad E.D.A. 9.0.4

Rev:
Id: 89/107

Regulated channels



VBUS channels



Sheet: /Channel_Matrix/
File: Channel_Matrix.kicad_sch

Title:

Size: A4 | Date:
KiCad E.D.A. 9.0.4

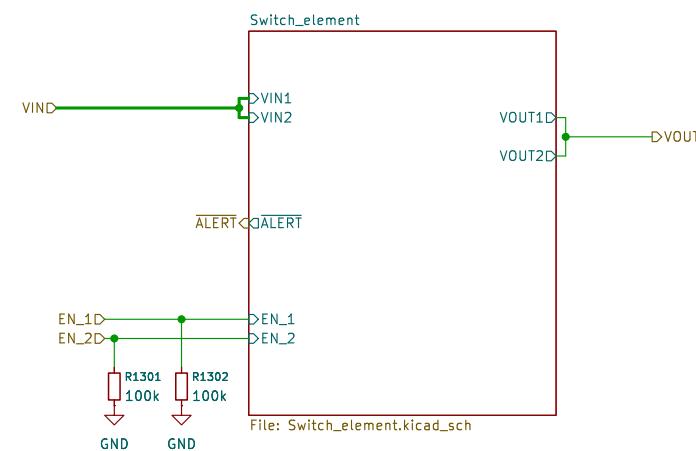
Rev:
Id: 20/107

A

Inputs	Outputs
Input voltage	Output voltage
Input from CPU	

A

Generic Switch
soft current limit – software
hard current limit – Resistor
kalibrace ADC mereni proudu
hot/cold redundance
hot – 1 enable automatic
cold – 2 enables manual



B

B

C

C

D

D

Sheet: /Channel_Matrix/Switch_CH_9/
File: Switch_C.kicad_sch

Title:

Size: A4 | Date:
KiCad E.D.A. 9.0.4

Rev:
Id: 13/107

A

A

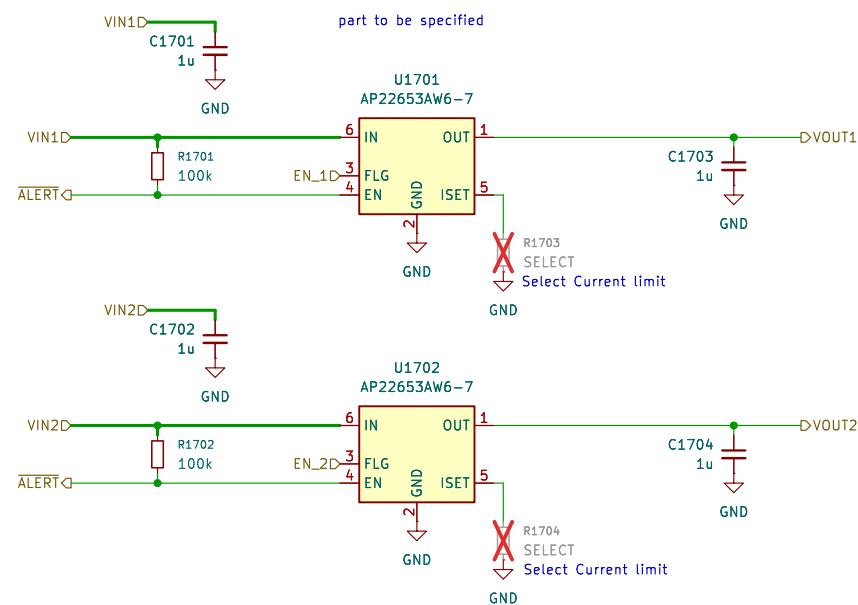
Candidates

6A
TPS281C30ERGWR
TPS25910RSAR
TPS1H200A-Q1 – too much Ron

TPS259802

10A
TPS1685
TPS25983
LTC4226

TPS25983



B

B

C

C

D

D

Sheet: /Channel_Matrix/Switch_CH_9/Switch_element/
File: Switch_element.kicad_sch

Title:

Size: A4 Date:
KiCad E.D.A. 9.0.4

Rev:
Id: 18/107

A

A

Inputs	Outputs
BUS Voltage	5V

2A

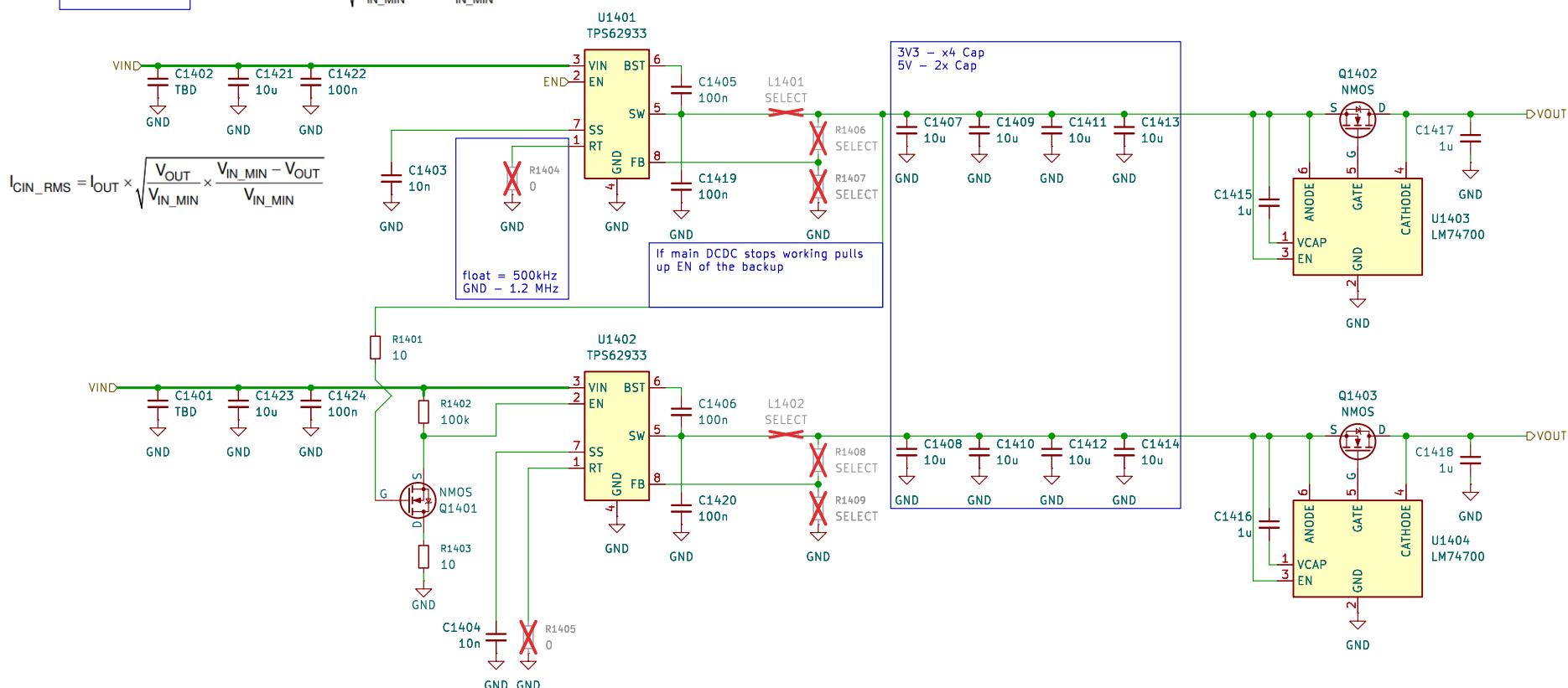
$$I_{CIN_RMS} = I_{OUT} \times \sqrt{\frac{V_{IN_MIN} - V_{OUT}}{V_{IN_MIN}}} \times \frac{V_{IN_MIN} - V_{OUT}}{V_{IN_MIN}}$$

Use Rxx03 and Rxx00 to select output voltage

Output voltage
5V
10000*(5V-0.8)/0.8 => Rxx03,Rxx00 =
52500

B

B



D

D

Sheet: /Channel_Matrix/5V_DCDC_8/
File: DCDC_ADJUSTABLE.kicad_sch

Title:

Size: A4 | Date:
KiCad E.D.A. 9.0.4

Rev:
Id: 14/107

A

A

Inputs	Outputs
BUS Voltage	5V

2A

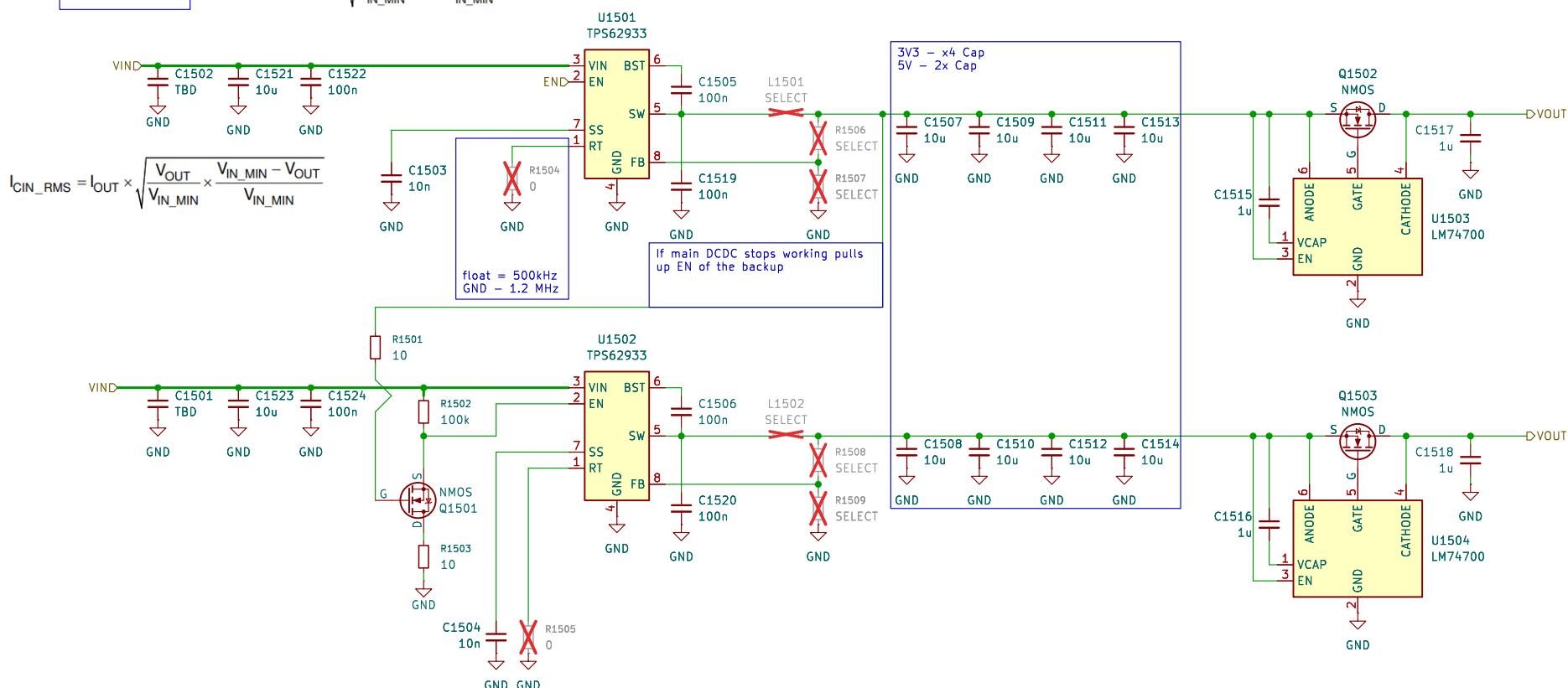
$$I_{CIN_RMS} = I_{OUT} \times \sqrt{\frac{V_{IN_MIN} - V_{OUT}}{V_{IN_MIN}}} \times \frac{V_{IN_MIN} - V_{OUT}}{V_{IN_MIN}}$$

Use Rxx03 and Rxx00 to select output voltage

Output voltage
5V
10000*(5V-0.8)/0.8 => Rxx03,Rxx00 =
52500

B

B



D

D

Sheet: /Channel_Matrix/5V_DCDC_1/
File: DCDC_ADJUSTABLE.kicad_sch

Title:

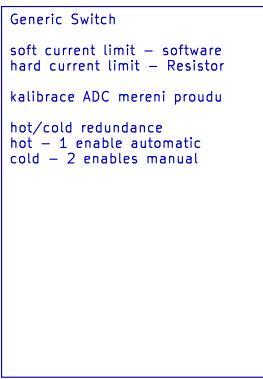
Size: A4 | Date:
KiCad E.D.A. 9.0.4

Rev:
Id: 15/107

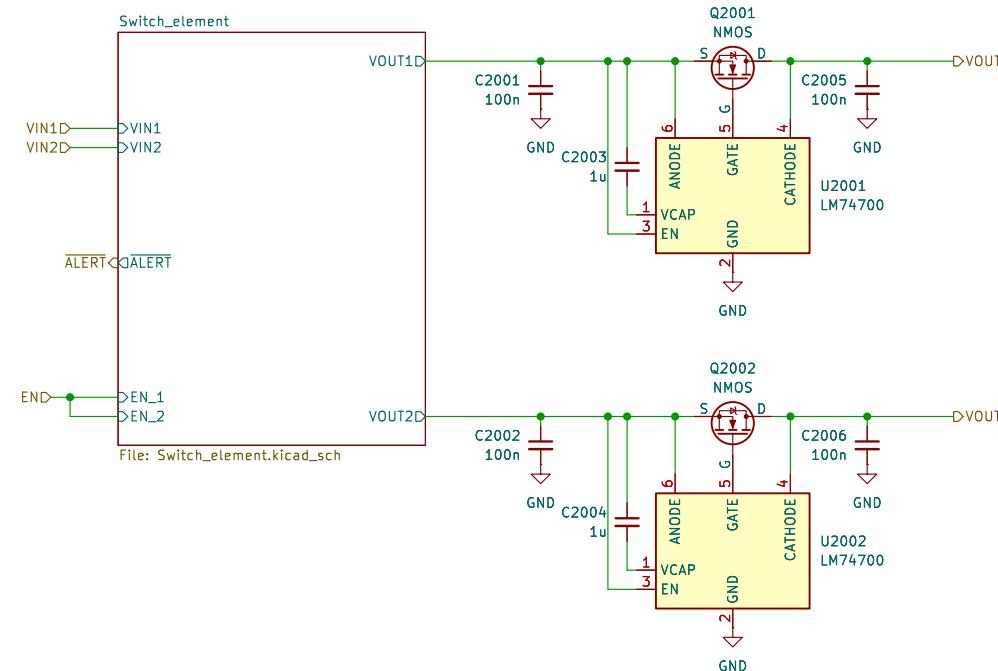
Inputs	Outputs
Input voltage	Output voltage
Input from CPU	

dedikovaný ideal diode IC

A



B



C

D

Sheet: /Channel_Matrix/Switch_CH_7/
File: Switch_H.kicad_sch

Title:

Size: A4 | Date:
KiCad E.D.A. 9.0.4

Rev:
Id: 21/107

A

A

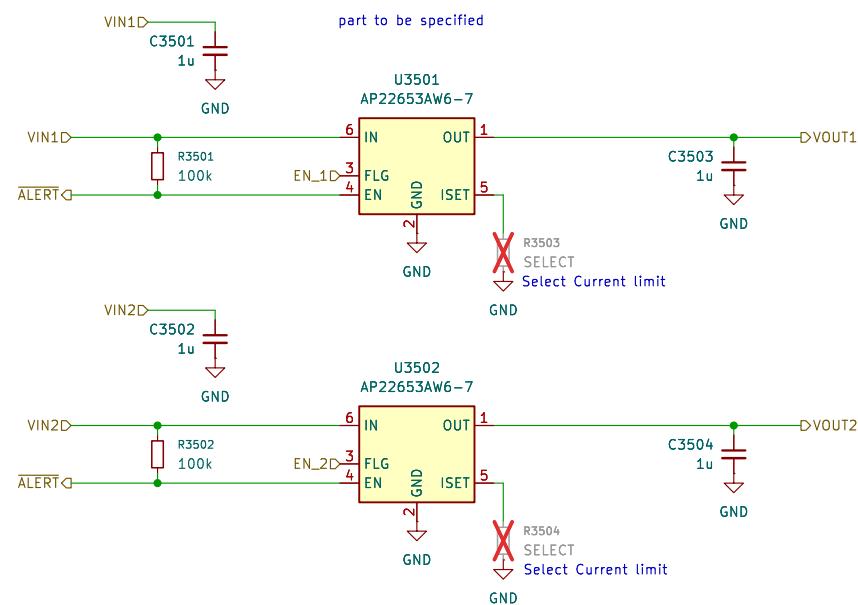
Candidates

6A
TPS281C30ERGWR
TPS25910RSAR
TPS1H200A-Q1 – too much Ron

TPS259802

10A
TPS1685
TPS25983
LTC4226

TPS25983



B

B

C

C

D

D

Sheet: /Channel_Matrix/Switch_CH_7/Switch_element/
File: Switch_element.kicad_sch

Title:

Size: A4 | Date:
KiCad E.D.A. 9.0.4

Rev:
Id: 37/107

A

A

Inputs	Outputs
BUS Voltage	5V

2A

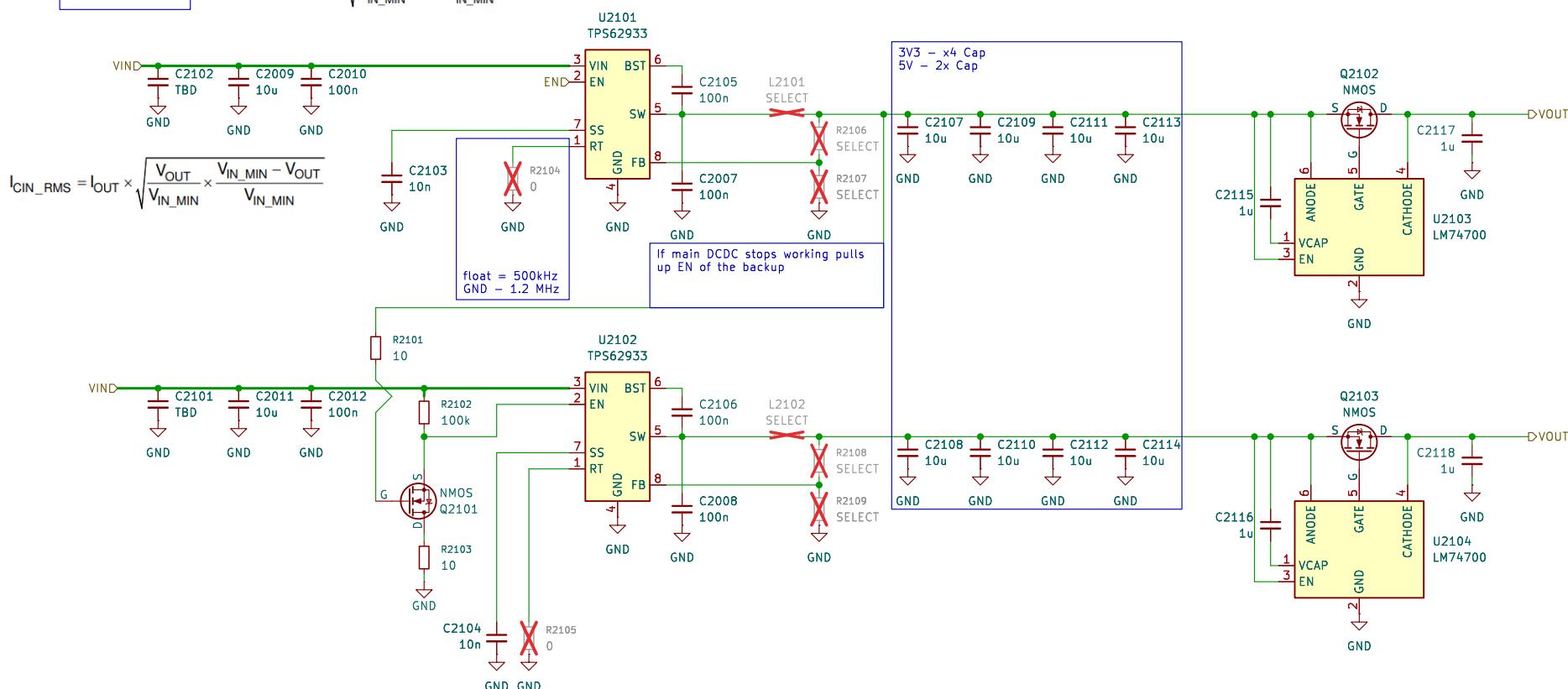
$$I_{CIN_RMS} = I_{OUT} \times \sqrt{\frac{V_{IN_MIN} - V_{OUT}}{V_{IN_MIN}}} \times \frac{V_{IN_MIN} - V_{OUT}}{V_{IN_MIN}}$$

Use Rxx03 and Rxx00 to select output voltage

Output voltage
5V
10000*(5V-0.8)/0.8 => Rxx03,Rxx00 =
52500

B

B



C

C

D

D

Sheet: /Channel_Matrix/5V_DCDC_7/
File: DCDC_ADJUSTABLE.kicad_sch

Title:

Size: A4 | Date:
KiCad E.D.A. 9.0.4

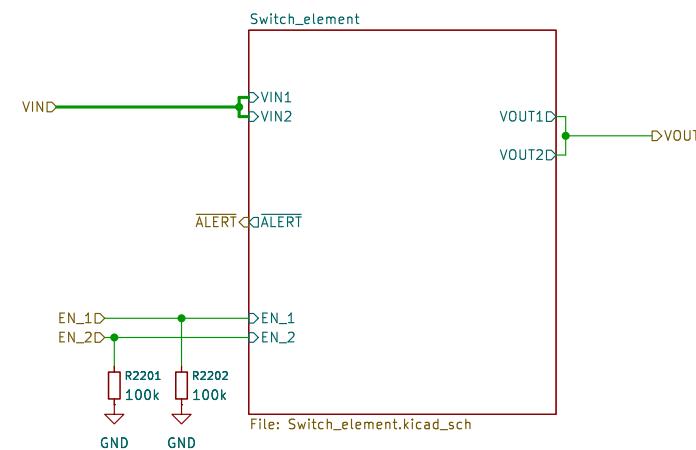
Rev:
Id: 23/107

A

Inputs	Outputs
Input voltage	Output voltage
Input from CPU	

A

Generic Switch
soft current limit – software
hard current limit – Resistor
kalibrace ADC mereni proudu
hot/cold redundancy
hot – 1 enable automatic
cold – 2 enables manual



B

B

C

C

D

D

Sheet: /Channel_Matrix/Switch_CH_10/
File: Switch_C.kicad_sch

Title:

Size: A4 | Date:
KiCad E.D.A. 9.0.4

Rev:
Id: 24/107

A

A

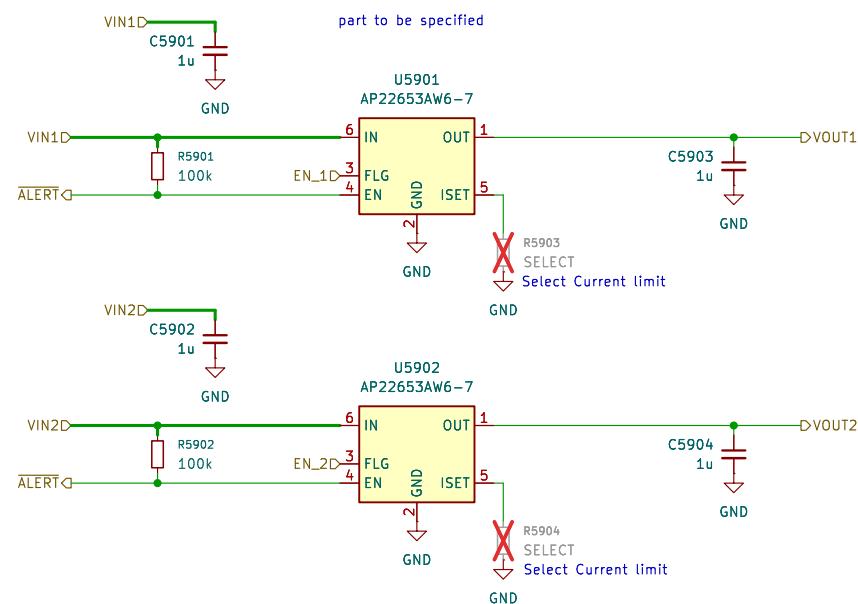
Candidates

6A
TPS281C30ERGWR
TPS25910RSAR
TPS1H200A-Q1 – too much Ron

TPS259802

10A
TPS1685
TPS25983
LTC4226

TPS25983



B

B

C

C

D

D

Sheet: /Channel_Matrix/Switch_CH_10/Switch_element/
File: Switch_element.kicad_sch

Title:

Size: A4 | Date:
KiCad E.D.A. 9.0.4

Rev:
Id: 61/107

A

A

Inputs	Outputs
BUS Voltage	5V

2A

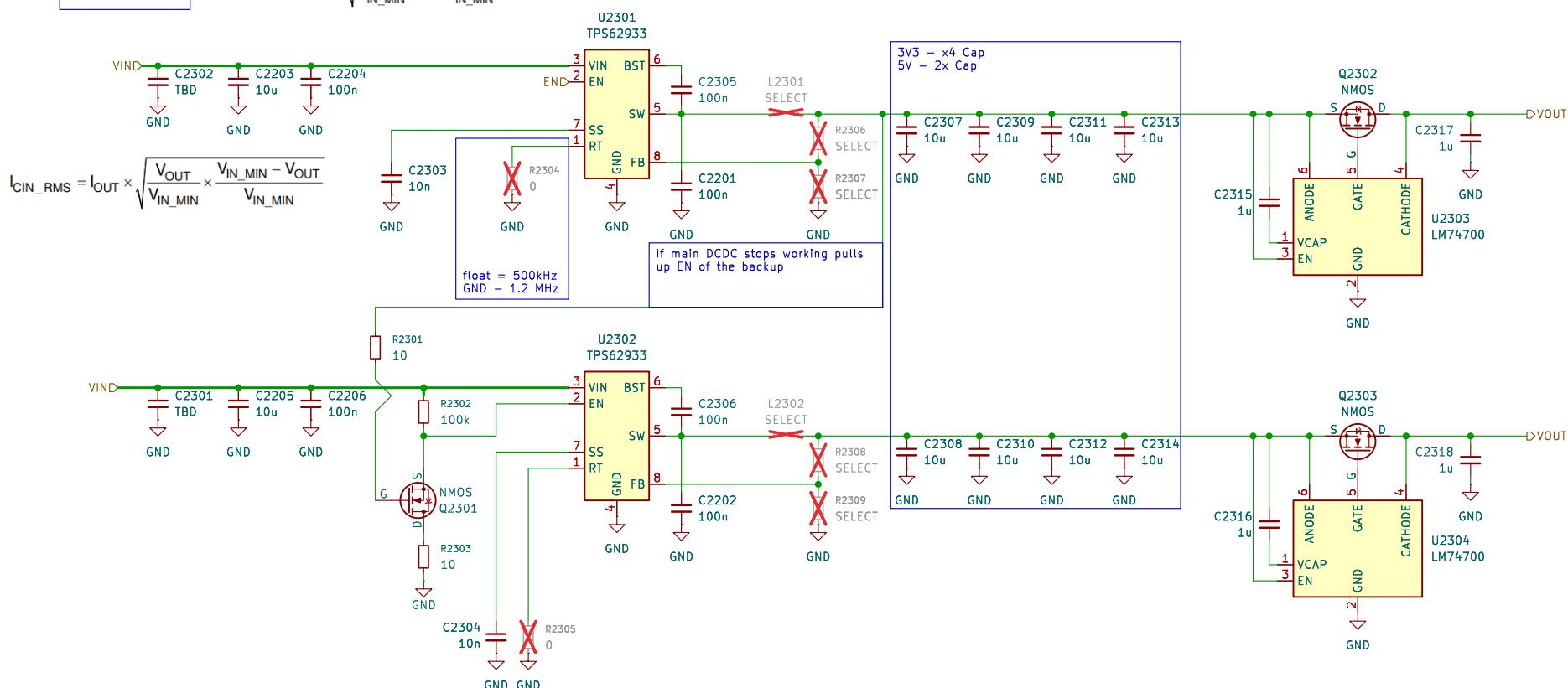
$$I_{CIN_RMS} = I_{OUT} \times \sqrt{\frac{V_{IN_MIN} - V_{OUT}}{V_{IN_MIN}}} \times \frac{V_{IN_MIN} - V_{OUT}}{V_{IN_MIN}}$$

Use Rxx03 and Rxx00 to select output voltage

Output voltage
5V
10000*(5V-0.8)/0.8 => Rxx03,Rxx00 =
52500

B

B



D

D

Sheet: /Channel_Matrix/5V_DCDC_2/
File: DCDC_ADJUSTABLE.kicad_sch

Title:

Size: A4 | Date:
KiCad E.D.A. 9.0.4

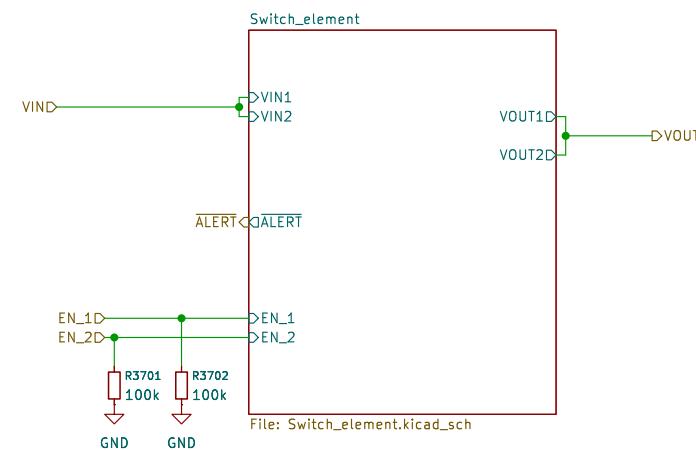
Rev:
Id: 25/107

A

Inputs	Outputs
Input voltage	Output voltage
Input from CPU	

A

Generic Switch
soft current limit – software
hard current limit – Resistor
kalibrace ADC mereni proudu
hot/cold redundancy
hot – 1 enable automatic
cold – 2 enables manual



B

B

Sheet: /Channel_Matrix/Switch_CH_1/
File: Switch_C.kicad_sch

Title:

Size: A4 | Date:
KiCad E.D.A. 9.0.4

Rev:
Id: 39/107

A

A

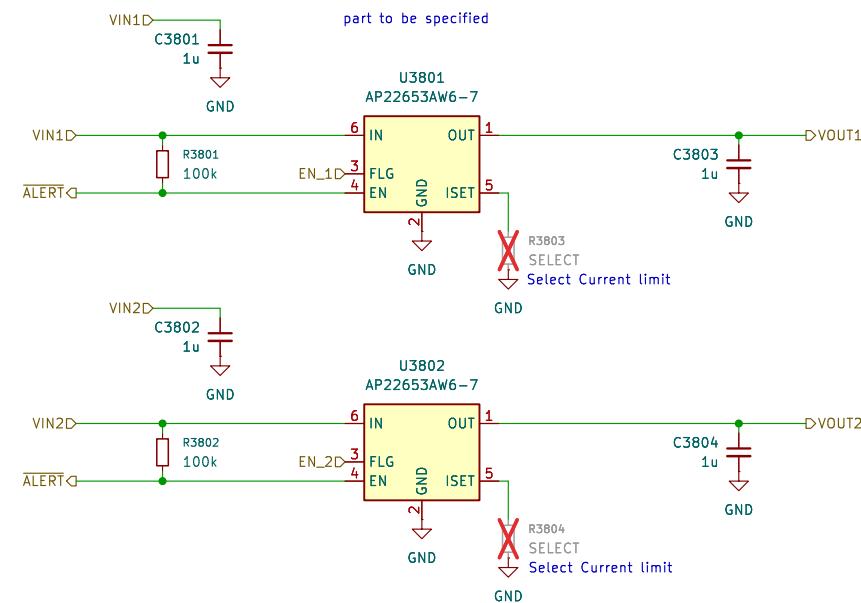
Candidates

6A
TPS281C30ERGWR
TPS25910RSAR
TPS1H200A-Q1 – too much Ron

TPS259802

10A
TPS1685
TPS25983
LTC4226

TPS25983



B

B

C

C

D

D

Sheet: /Channel_Matrix/Switch_CH_1/Switch_element/
File: Switch_element.kicad_sch

Title:

Size: A4 | Date:
KiCad E.D.A. 9.0.4

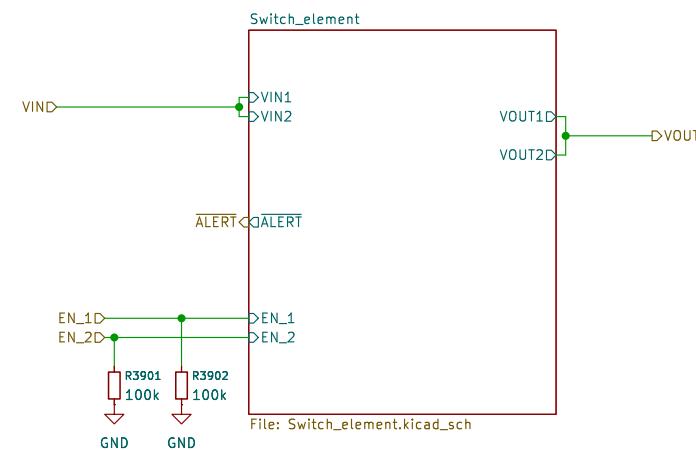
Rev:
Id: 40/107

A

Inputs	Outputs
Input voltage	Output voltage
Input from CPU	

A

Generic Switch
soft current limit – software
hard current limit – Resistor
kalibrace ADC mereni proudu
hot/cold redundancy
hot – 1 enable automatic
cold – 2 enables manual



B

B

C

C

D

D

Sheet: /Channel_Matrix/Switch_CH_2/
File: Switch_C.kicad_sch

Title:

Size: A4 | Date:
KiCad E.D.A. 9.0.4

Rev:
Id: 41/107

A

A

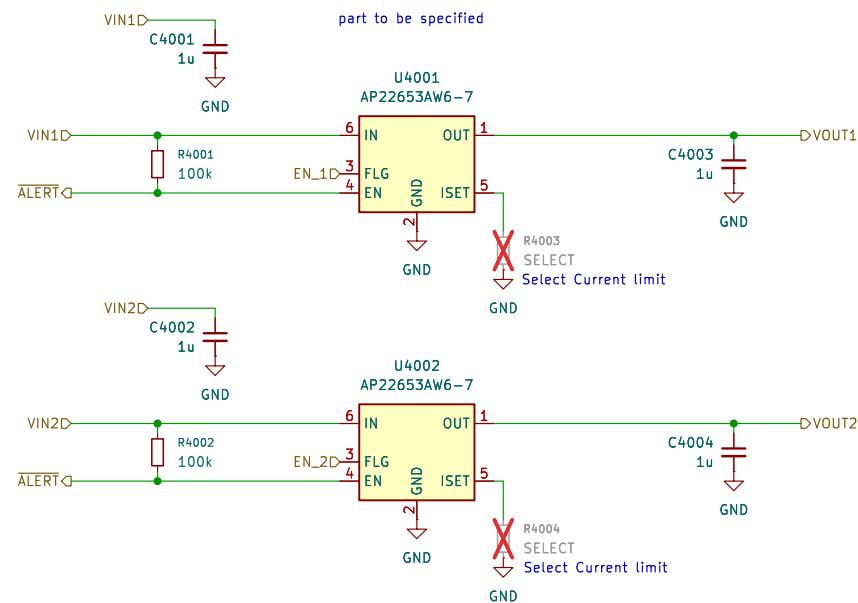
Candidates

6A
TPS281C30ERGWR
TPS25910RSAR
TPS1H200A-Q1 – too much Ron

TPS259802

10A
TPS1685
TPS25983
LTC4226

TPS25983



B

B

C

C

D

D

Sheet: /Channel_Matrix/Switch_CH_2/Switch_element/
File: Switch_element.kicad_sch

Title:

Size: A4 Date:
KiCad E.D.A. 9.0.4

Rev:
Id: 42/107

A

A

Inputs	Outputs
BUS Voltage	5V

2A

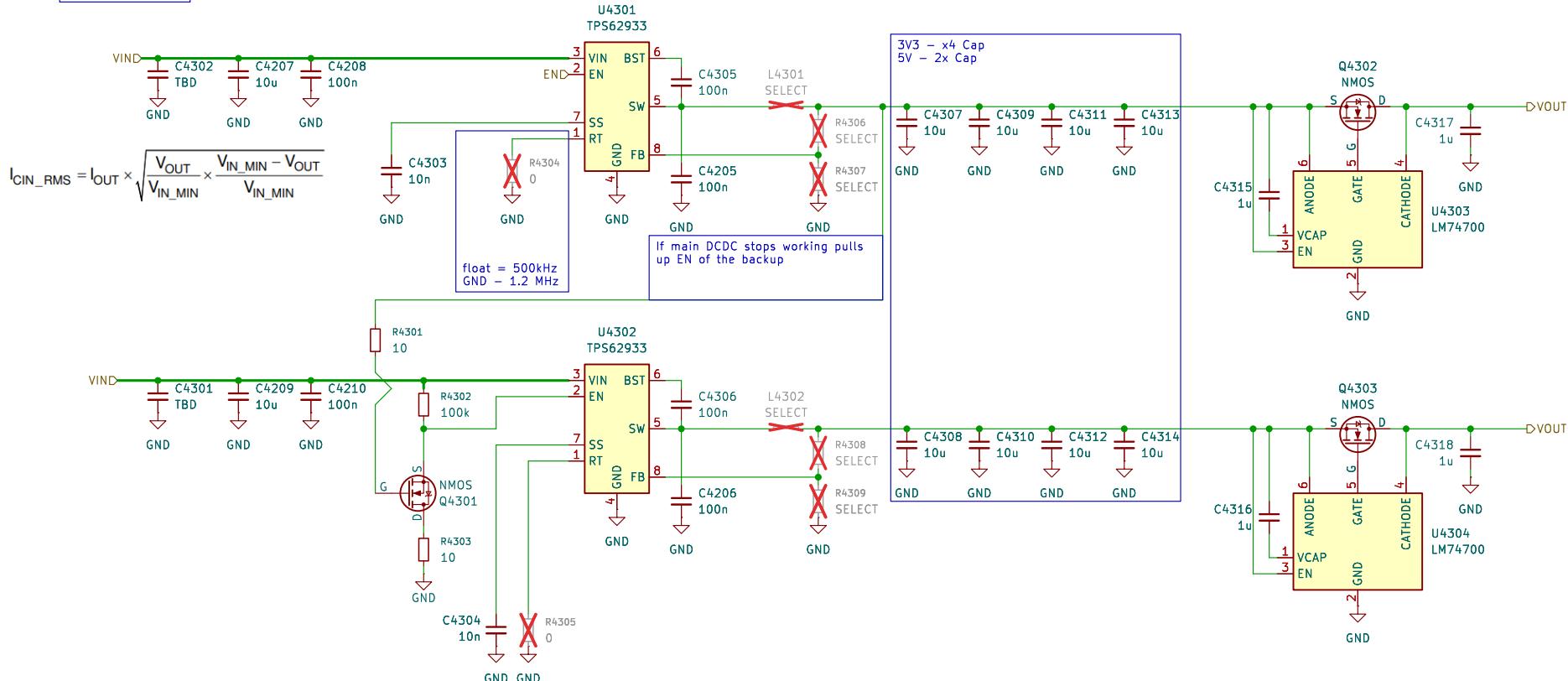
$$I_{CIN_RMS} = I_{OUT} \times \sqrt{\frac{V_{IN_MIN} - V_{OUT}}{V_{IN_MIN}}} \times \frac{V_{IN_MIN} - V_{OUT}}{V_{IN_MIN}}$$

Use Rxx03 and Rxx00 to select output voltage

Output voltage
5V
10000*(5V-0.8)/0.8 => Rxx03,Rxx00 =
52500

B

B



D

D

Sheet: /Channel_Matrix/5V_DCDC_6/
File: DCDC_ADJUSTABLE.kicad_sch

Title:

Size: A4 | Date:
KiCad E.D.A. 9.0.4

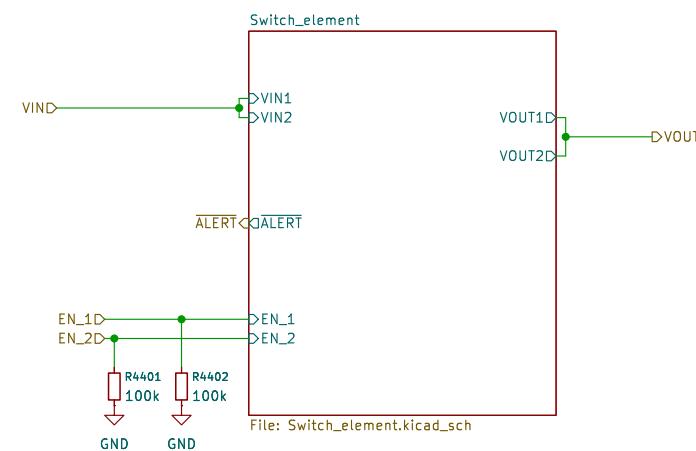
Rev:
Id: 45/107

A

Inputs	Outputs
Input voltage	Output voltage
Input from CPU	

A

Generic Switch
soft current limit – software
hard current limit – Resistor
kalibrace ADC mereni proudu
hot/cold redundancy
hot – 1 enable automatic
cold – 2 enables manual



B

B

C

C

D

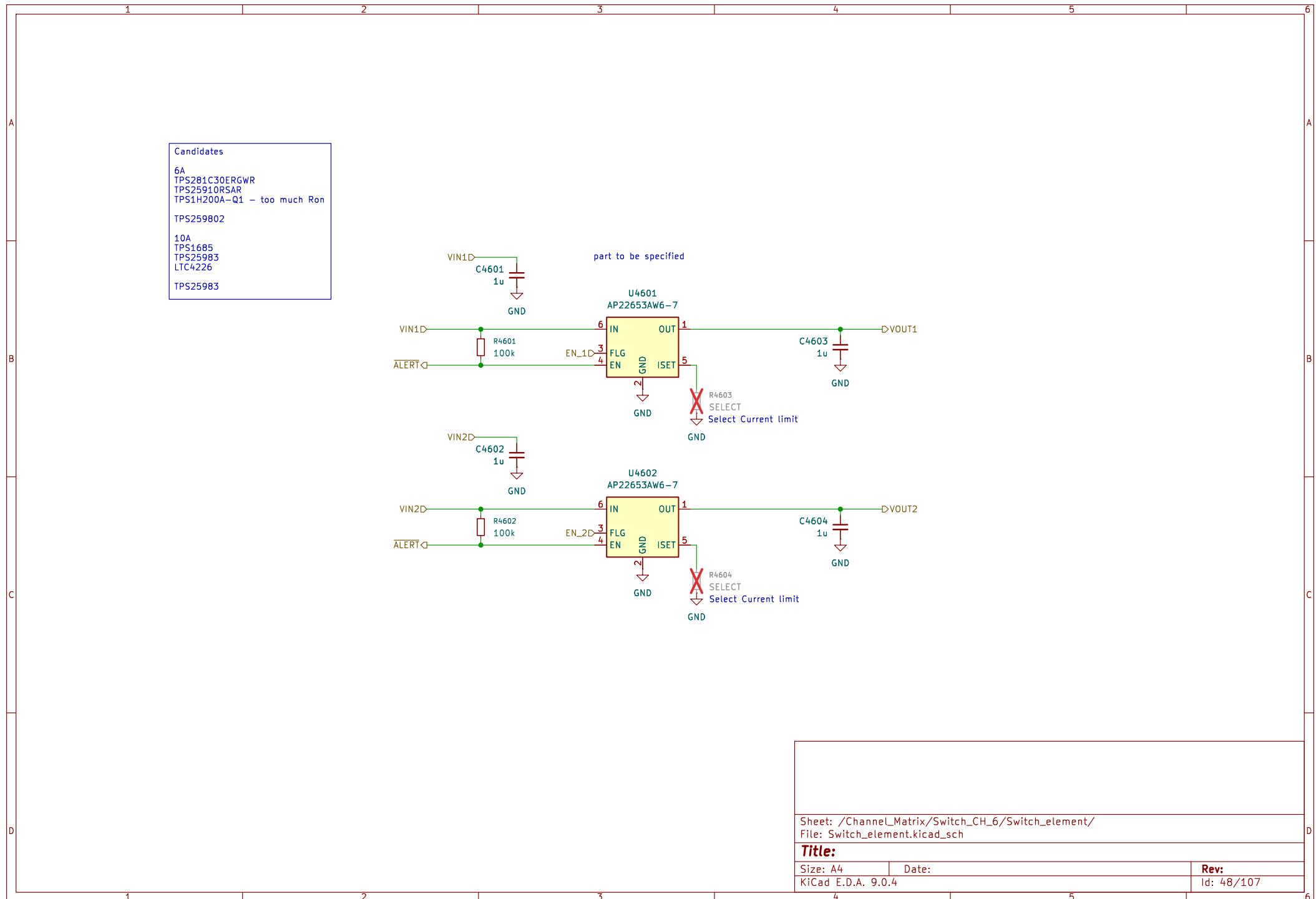
D

Sheet: /Channel_Matrix/Switch_CH_6/
File: Switch_C.kicad_sch

Title:

Size: A4 | Date:
KiCad E.D.A. 9.0.4

Rev:
Id: 46/107

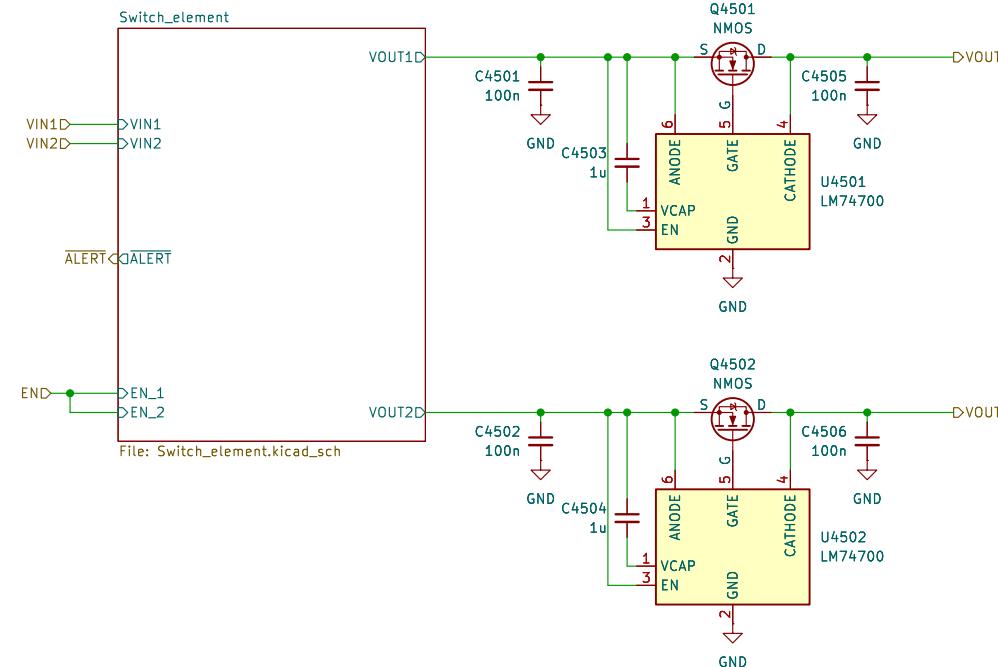


dedikovaný ideal diode IC

Inputs	Outputs
Input voltage	Output voltage
Input from CPU	

A

Generic Switch
soft current limit – software
hard current limit – Resistor
kalibrace ADC merení proudu
hot/cold redundance
hot – 1 enable automatic
cold – 2 enables manual



B

A

B

C

C

D

D

Sheet: /Channel_Matrix/Switch_CH_8/
File: Switch_H.kicad_sch

Title:

Size: A4 | Date:
KiCad E.D.A. 9.0.4

Rev:
Id: 47/107

A

A

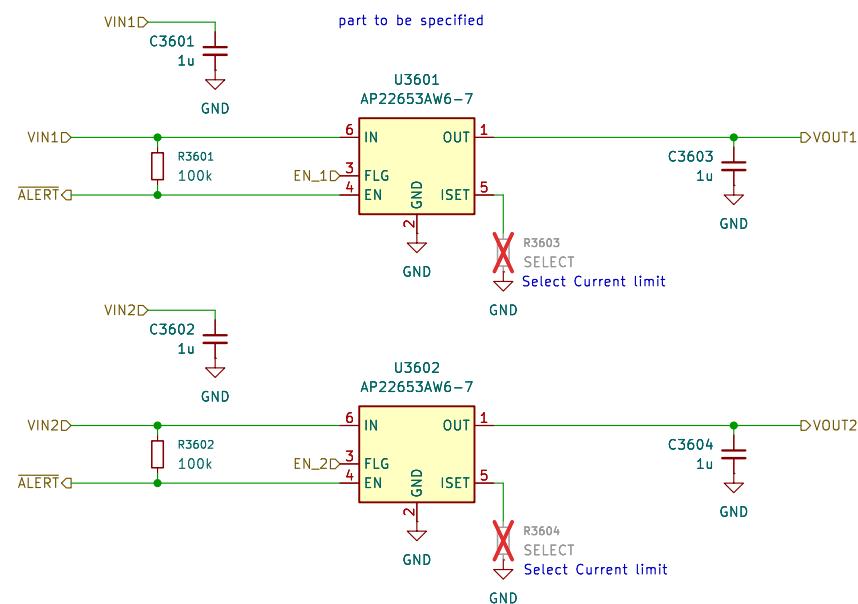
Candidates

6A
TPS281C30ERGWR
TPS25910RSAR
TPS1H200A-Q1 – too much Ron

TPS259802

10A
TPS1685
TPS25983
LTC4226

TPS25983



B

B

C

C

D

D

Sheet: /Channel_Matrix/Switch_CH_8/Switch_element/
File: Switch_element.kicad_sch

Title:

Size: A4 | Date:
KiCad E.D.A. 9.0.4

Rev:
Id: 38/107

A

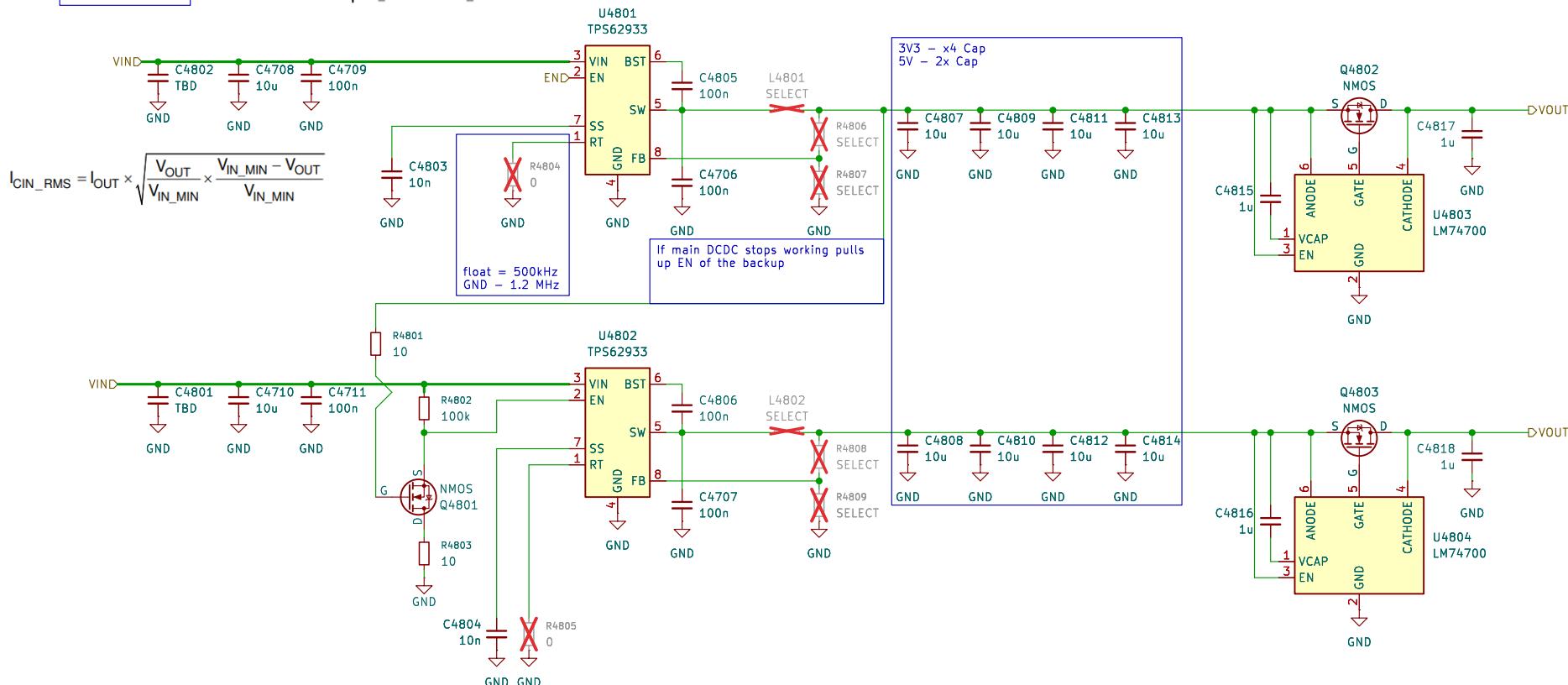
Inputs	Outputs
BUS Voltage	5V

2A

$$I_{CIN_RMS} = I_{OUT} \times \sqrt{\frac{V_{IN_MIN} - V_{OUT}}{V_{IN_MIN}}} \times \frac{V_{IN_MIN} - V_{OUT}}{V_{IN_MIN}}$$

Use Rxx03 and Rxx00 to select output voltage

Output voltage
5V
10000*(5V-0.8)/0.8 => Rxx03,Rxx00 =
52500



Sheet: /Channel_Matrix/5V_DCDC_5/
File: DCDC_ADJUSTABLE.kicad_sch

Title:

Size: A4 | Date:
KiCad E.D.A. 9.0.4

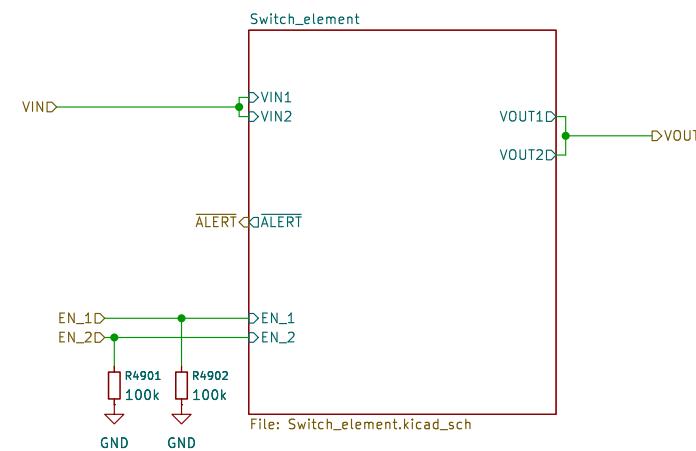
Rev:
Id: 50/107

A

Inputs	Outputs
Input voltage	Output voltage
Input from CPU	

A

Generic Switch
soft current limit – software
hard current limit – Resistor
kalibrace ADC mereni proudu
hot/cold redundancy
hot – 1 enable automatic
cold – 2 enables manual



B

B

C

C

D

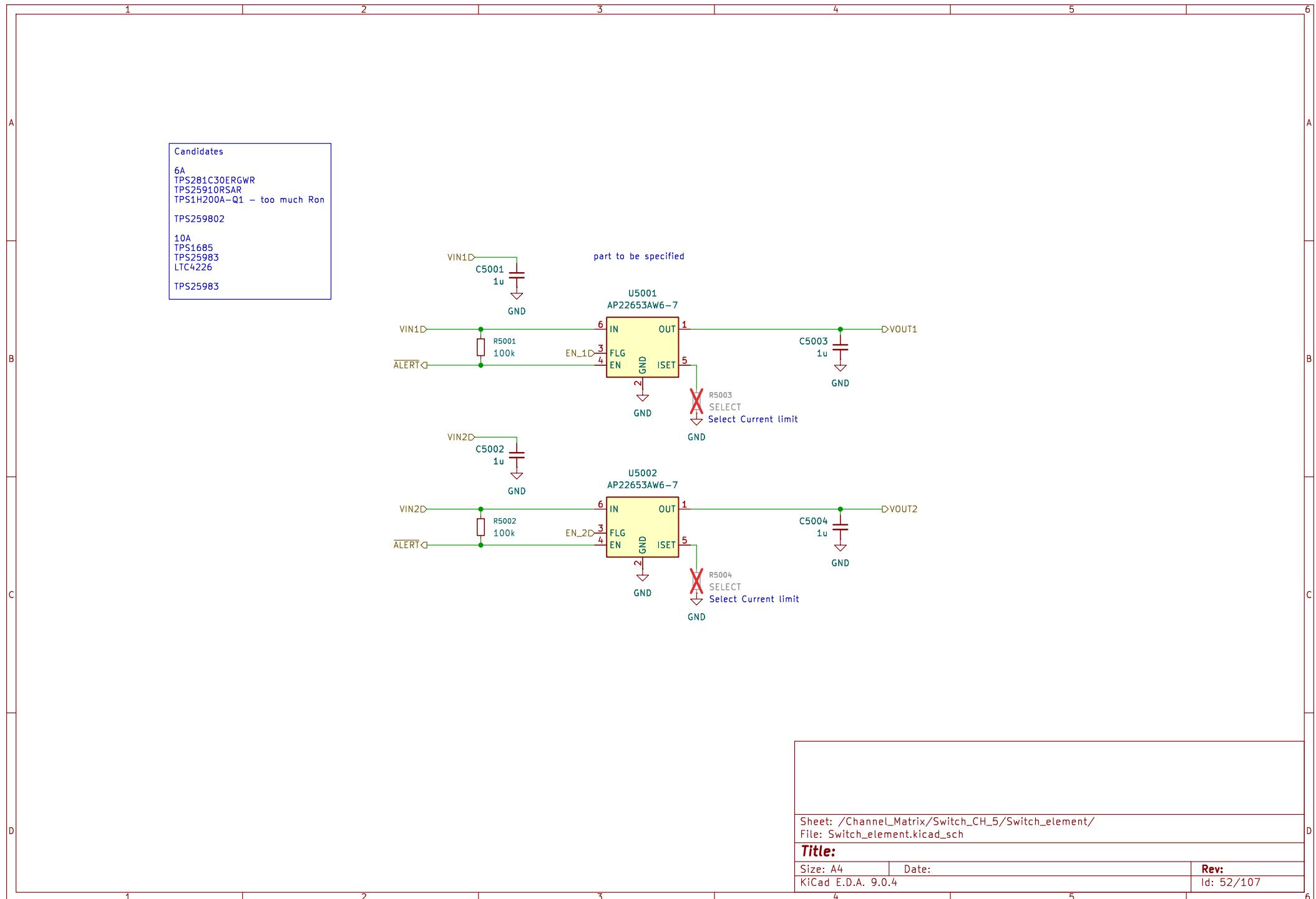
D

Sheet: /Channel_Matrix/Switch_CH_5/
File: Switch_C.kicad_sch

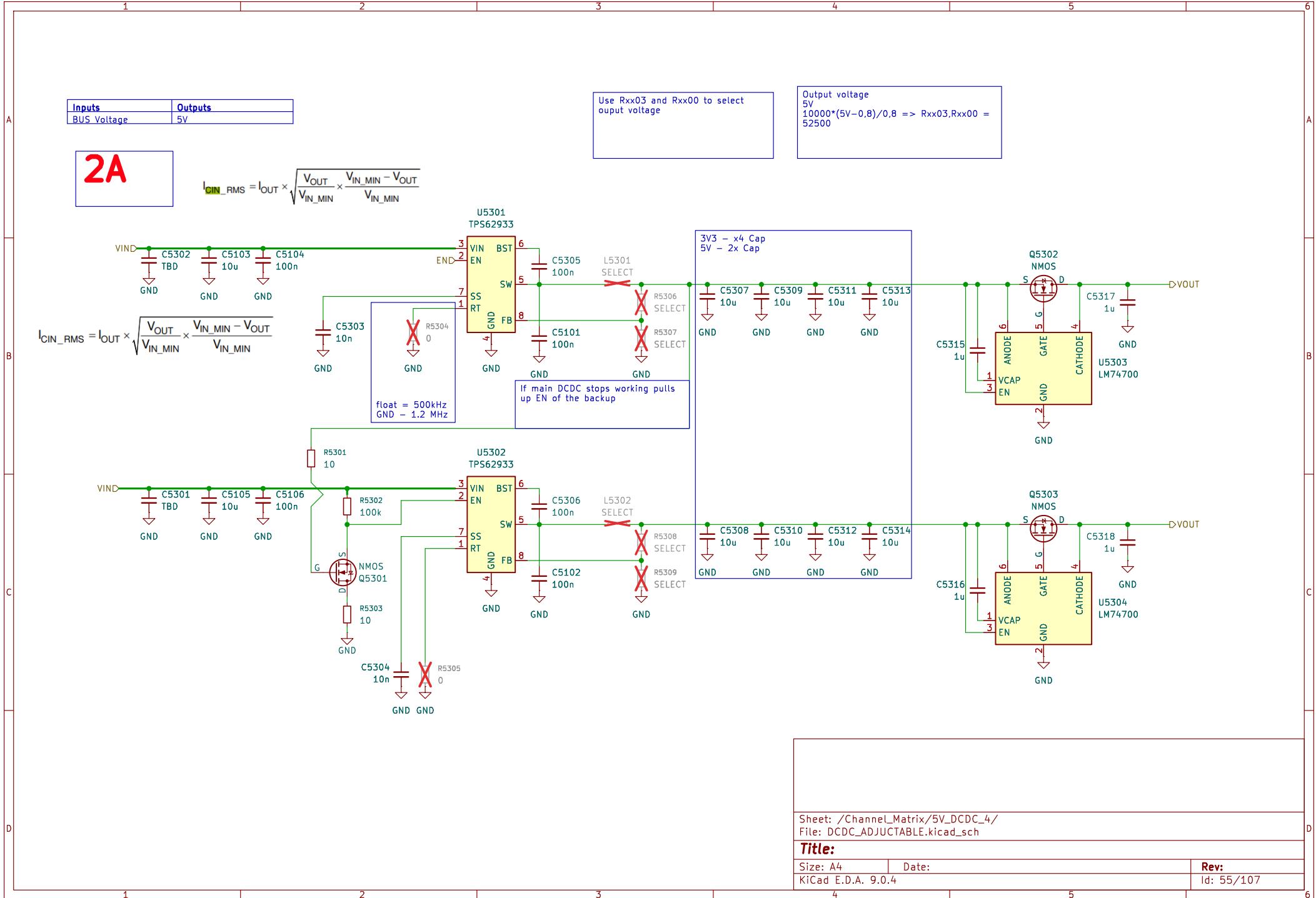
Title:

Size: A4 | Date:
KiCad E.D.A. 9.0.4

Rev:
Id: 51/107



1 2 3 4 5 6



A

Inputs	Outputs
BUS Voltage	5V

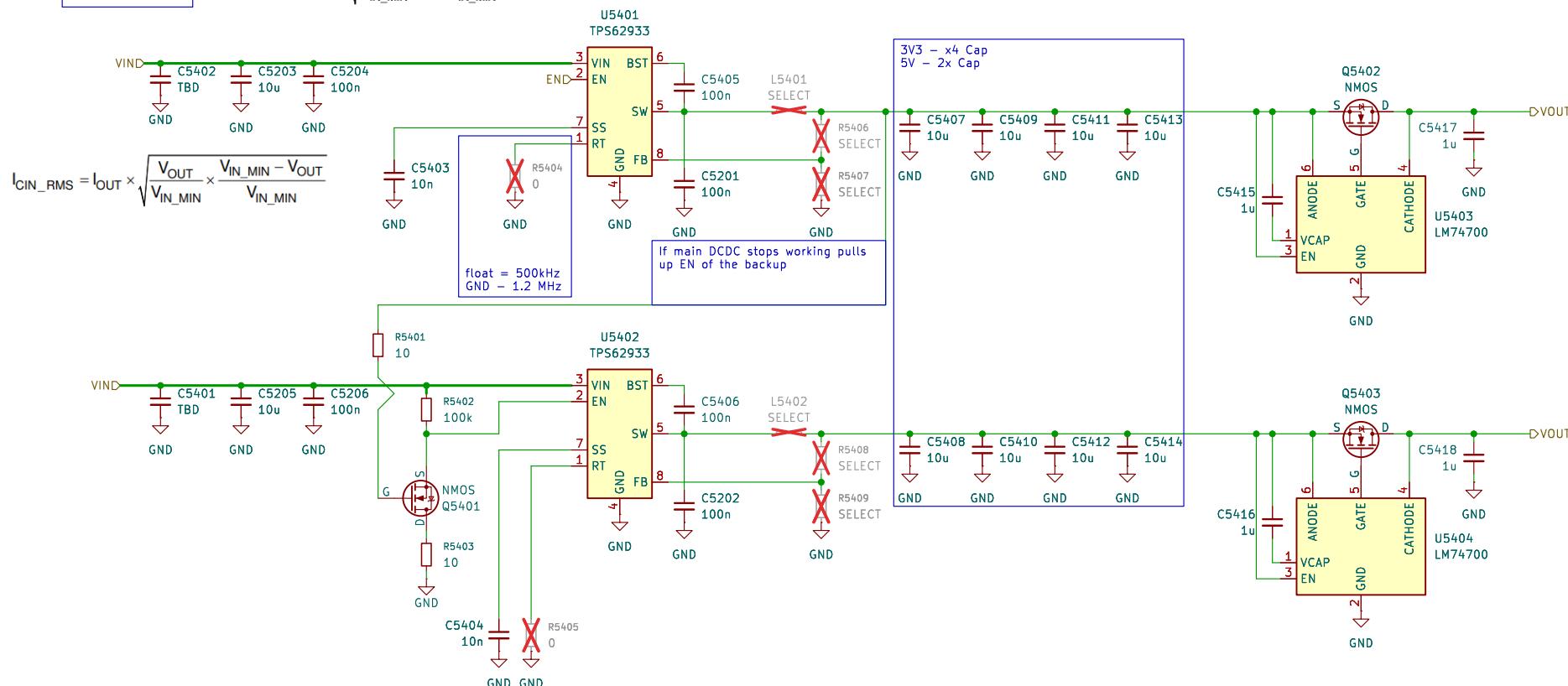
2A

$$I_{CIN_RMS} = I_{OUT} \times \sqrt{\frac{V_{IN_MIN} - V_{OUT}}{V_{IN_MIN}}} \times \frac{V_{IN_MIN} - V_{OUT}}{V_{IN_MIN}}$$

Use Rxx03 and Rxx00 to select output voltage

Output voltage
5V
10000*(5V-0.8)/0.8 => Rxx03,Rxx00 =
52500

B



C

1

2

3

Sheet: /Channel_Matrix/5V_DCDC_3/
File: DCDC_ADJUSTABLE.kicad_sch

Title:

Size: A4 Date:

KiCad E.D.A. 9.0.4

Rev:

Id: 56/107

4

5

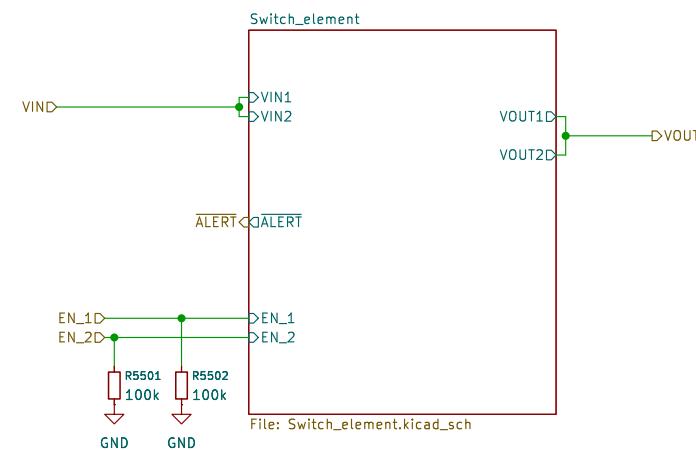
6

A

Inputs	Outputs
Input voltage	Output voltage
Input from CPU	

A

Generic Switch
soft current limit – software
hard current limit – Resistor
kalibrace ADC mereni proudu
hot/cold redundancy
hot – 1 enable automatic
cold – 2 enables manual



B

B

C

C

D

D

Sheet: /Channel_Matrix/Switch_CH_3/
File: Switch_C.kicad_sch

Title:

Size: A4 | Date:
KiCad E.D.A. 9.0.4

Rev:
Id: 57/107

A

A

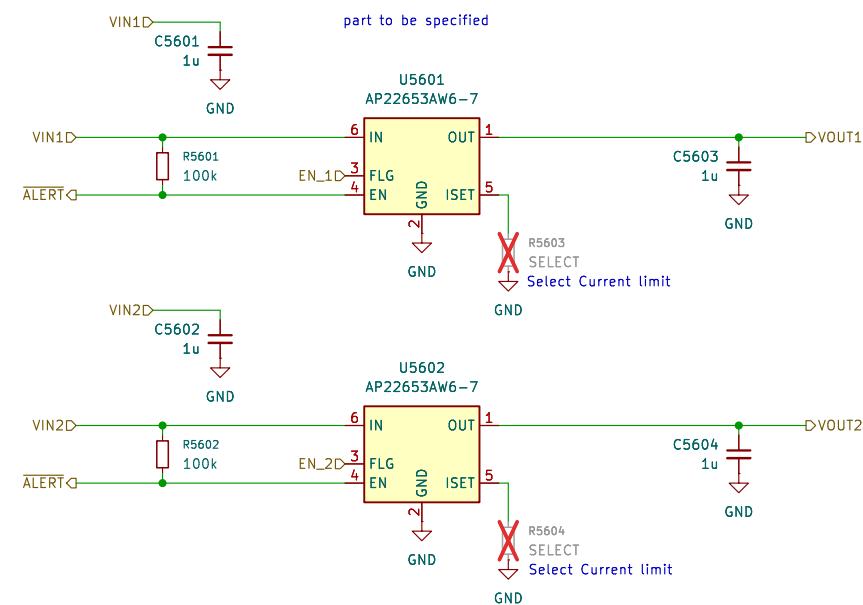
Candidates

6A
TPS281C30ERGWR
TPS25910RSAR
TPS1H200A-Q1 – too much Ron

TPS259802

10A
TPS1685
TPS25983
LTC4226

TPS25983



B

B

C

C

D

D

Sheet: /Channel_Matrix/Switch_CH_3/Switch_element/
File: Switch_element.kicad_sch

Title:

Size: A4 | Date:
KiCad E.D.A. 9.0.4

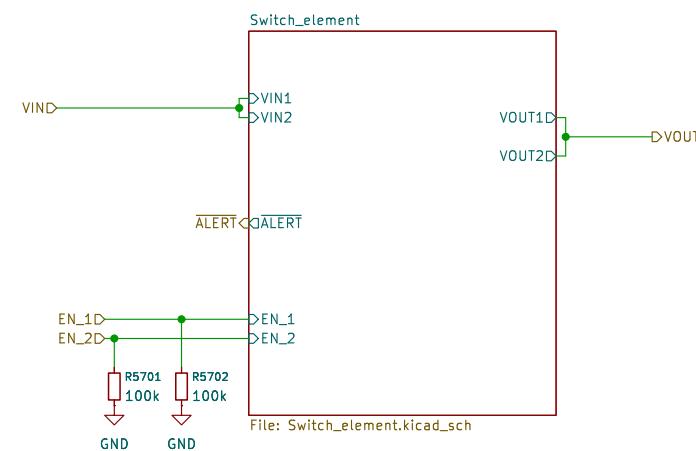
Rev:
Id: 58/107

A

Inputs	Outputs
Input voltage	Output voltage
Input from CPU	

A

Generic Switch
soft current limit – software
hard current limit – Resistor
kalibrace ADC mereni proudu
hot/cold redundancy
hot – 1 enable automatic
cold – 2 enables manual



B

B

C

C

D

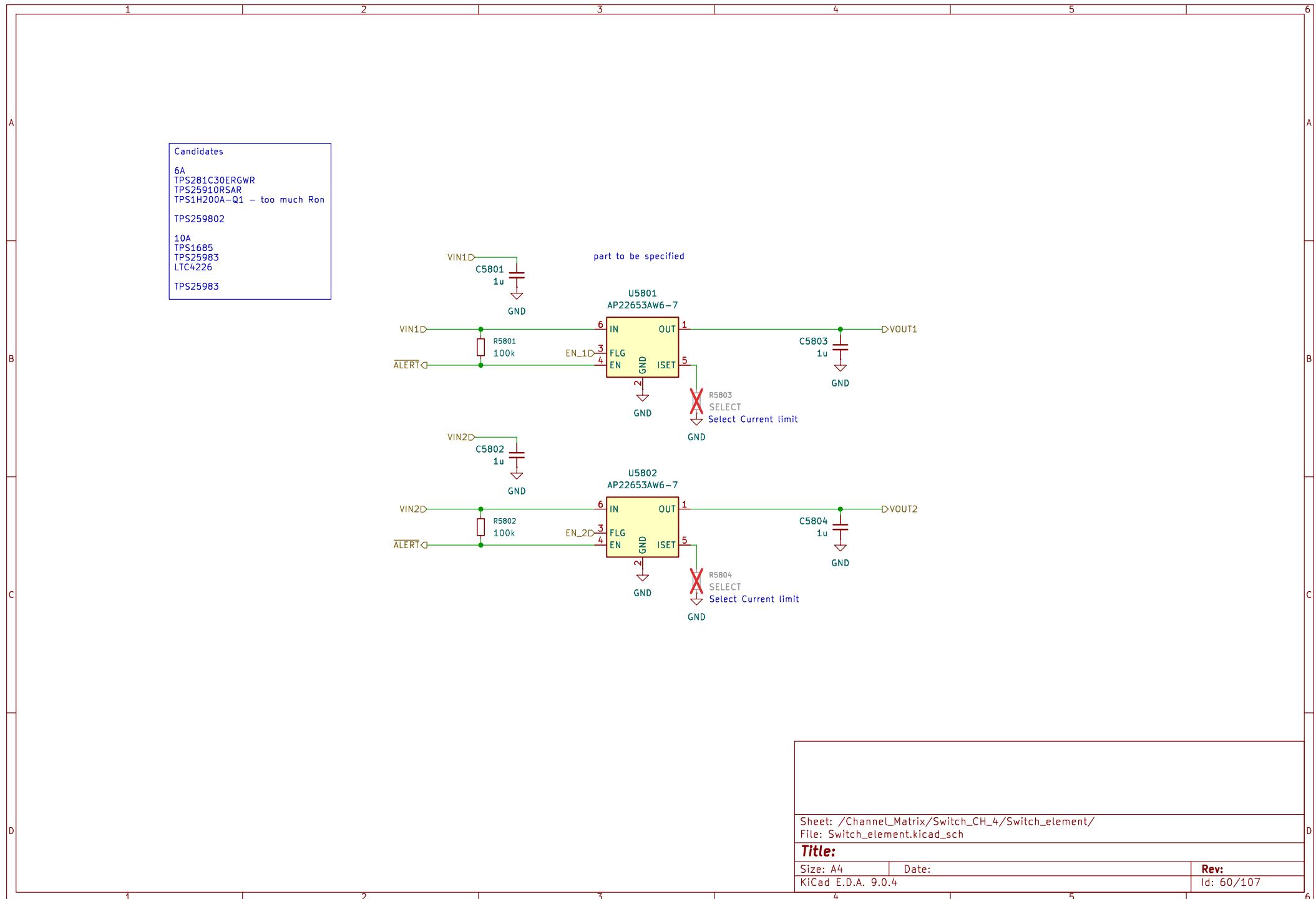
D

Sheet: /Channel_Matrix/Switch_CH_4/
File: Switch_C.kicad_sch

Title:

Size: A4 | Date:
KiCad E.D.A. 9.0.4

Rev:
Id: 59/107



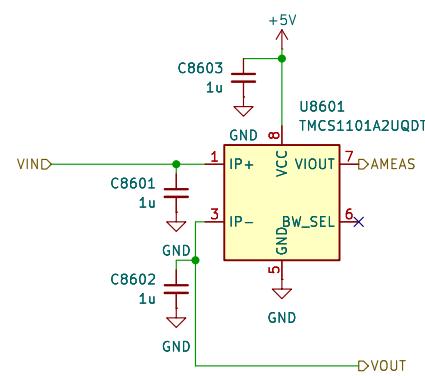
1 2 3 4 5 6

A

B

C

D



Sheet: /Channel_Matrix/AMEAS_1/
File: Current_Measure.kicad_sch

Title:

Size: A4 | Date:
KiCad E.D.A. 9.0.4

Rev:
Id: 92/107

1 2 3 4 5 6

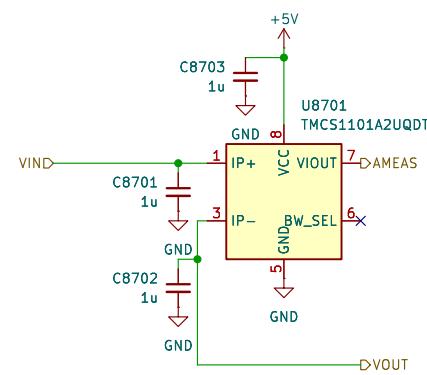
1 2 3 4 5 6

A

B

C

D



Sheet: /Channel_Matrix/AMEAS_2/
File: Current_Measure.kicad_sch

Title:

Size: A4 | Date:
KiCad E.D.A. 9.0.4

Rev:
Id: 93/107

1 2 3 4 5 6

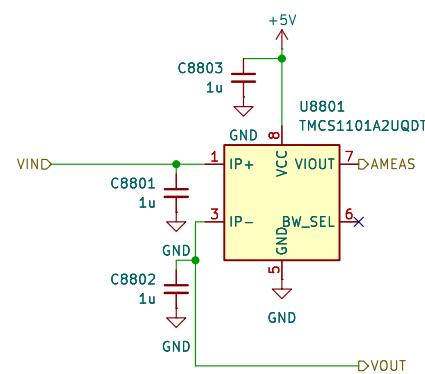
1 2 3 4 5 6

A

B

C

D



Sheet: /Channel_Matrix/AMEAS_3/
File: Current_Measure.kicad_sch

Title:

Size: A4 | Date:
KiCad E.D.A. 9.0.4

Rev:
Id: 94/107

1 2 3 4 5 6

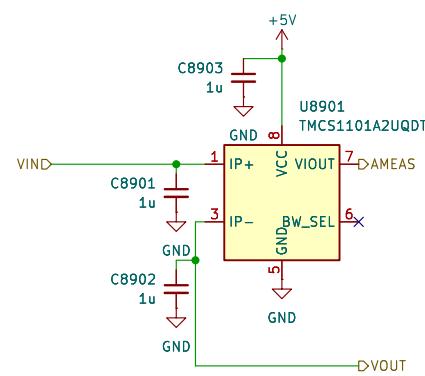
1 2 3 4 5 6

A

B

C

D



Sheet: /Channel_Matrix/AMEAS_4/
File: Current_Measure.kicad_sch

Title:

Size: A4 | Date:
KiCad E.D.A. 9.0.4

Rev:
Id: 95/107

1 2 3 4 5 6

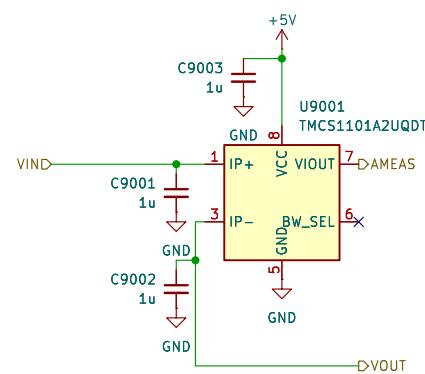
1 2 3 4 5 6

A

B

C

D



Sheet: /Channel_Matrix/AMEAS_5/
File: Current_Measure.kicad_sch

Title:

Size: A4 | Date:
KiCad E.D.A. 9.0.4

Rev:
Id: 96/107

1 2 3 4 5 6

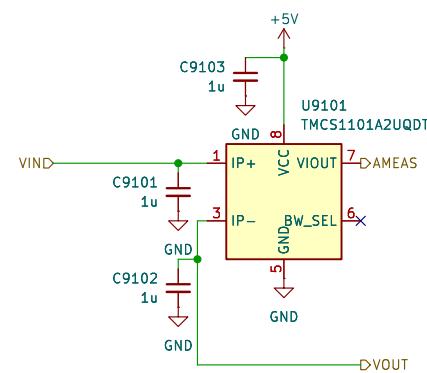
1 2 3 4 5 6

A

B

C

D



Sheet: /Channel_Matrix/AMEAS_6/
File: Current_Measure.kicad_sch

Title:

Size: A4 | Date:
KiCad E.D.A. 9.0.4

Rev:
Id: 97/107

1 2 3 4 5 6

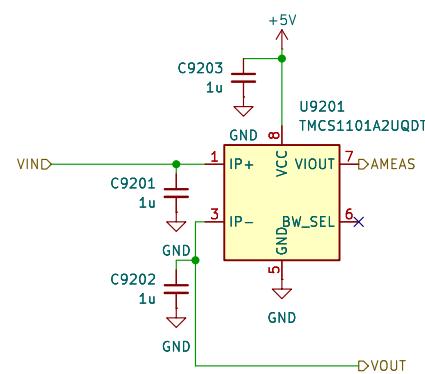
1 2 3 4 5 6

A

B

C

D



Sheet: /Channel_Matrix/AMEAS_7/
File: Current_Measure.kicad_sch

Title:

Size: A4 | Date:
KiCad E.D.A. 9.0.4

Rev:
Id: 98/107

1 2 3 4 5 6

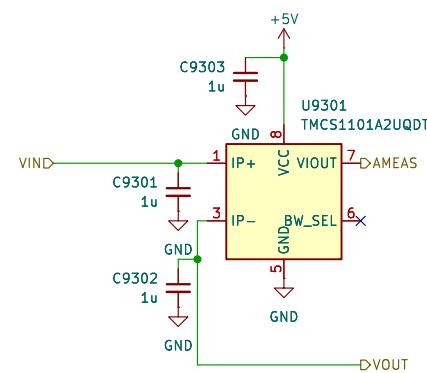
1 2 3 4 5 6

A

B

C

D



Sheet: /Channel_Matrix/AMEAS_8/
File: Current_Measure.kicad_sch

Title:

Size: A4 | Date:
KiCad E.D.A. 9.0.4

Rev:
Id: 99/107

1 2 3 4 5 6

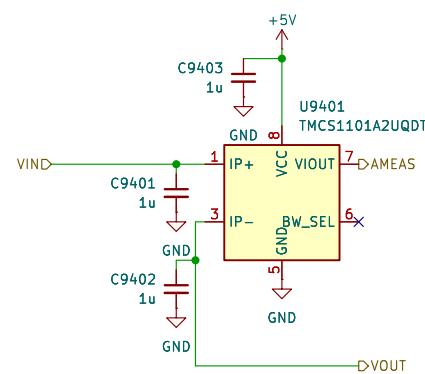
1 2 3 4 5 6

A

B

C

D



Sheet: /Channel_Matrix/AMEAS_9/
File: Current_Measure.kicad_sch

Title:

Size: A4 | Date:
KiCad E.D.A. 9.0.4

Rev:
Id: 100/107

1 2 3 4 5 6

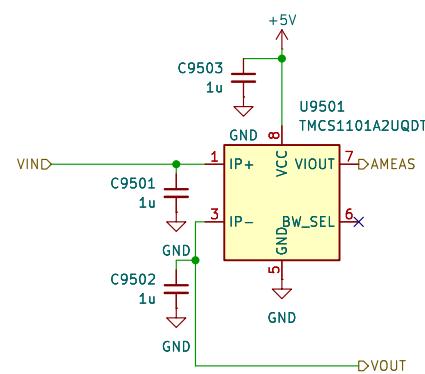
1 2 3 4 5 6

A

B

C

D



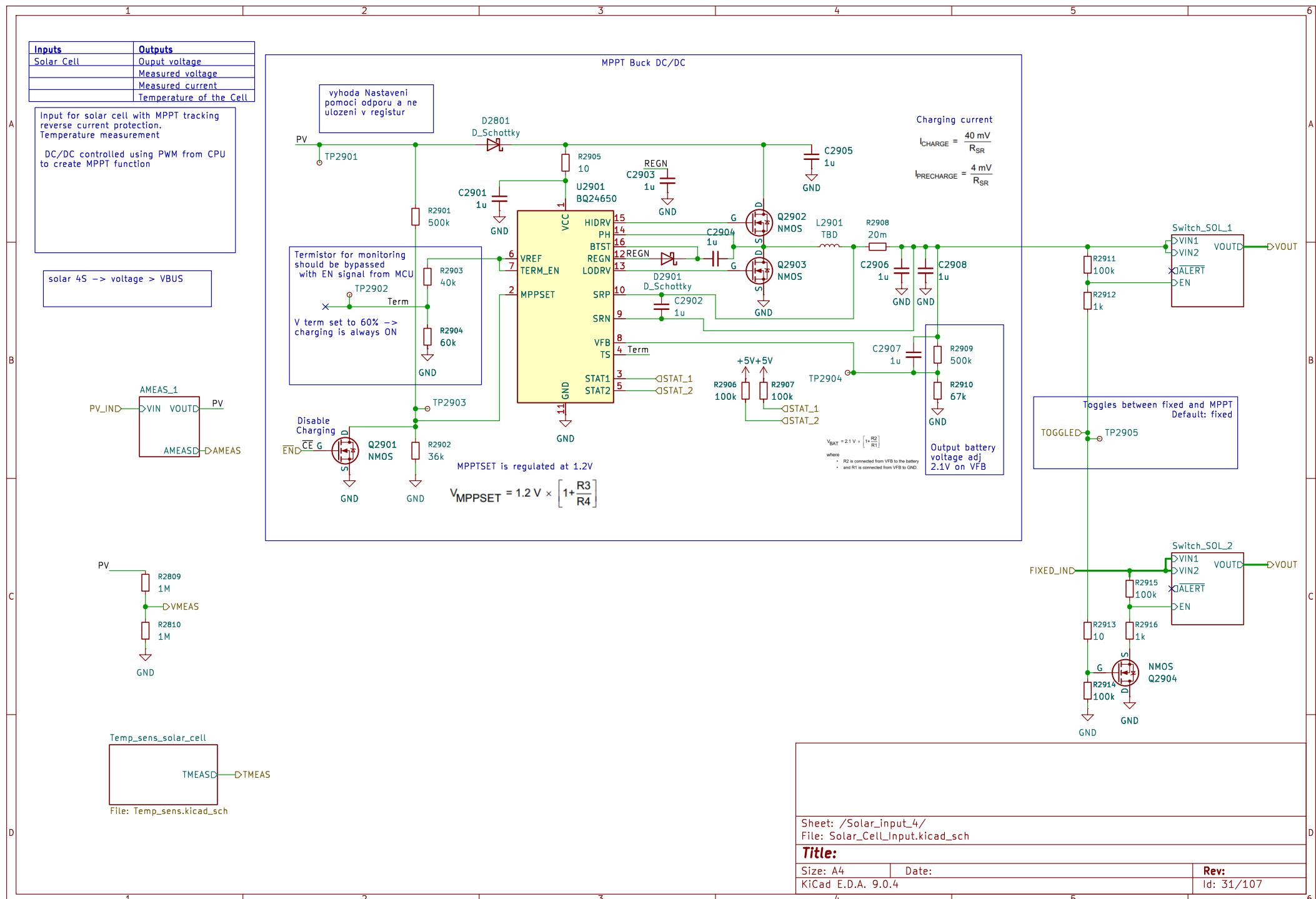
Sheet: /Channel_Matrix/AMEAS_10/
File: Current_Measure.kicad_sch

Title:

Size: A4 | Date:
KiCad E.D.A. 9.0.4

Rev:
Id: 101/107

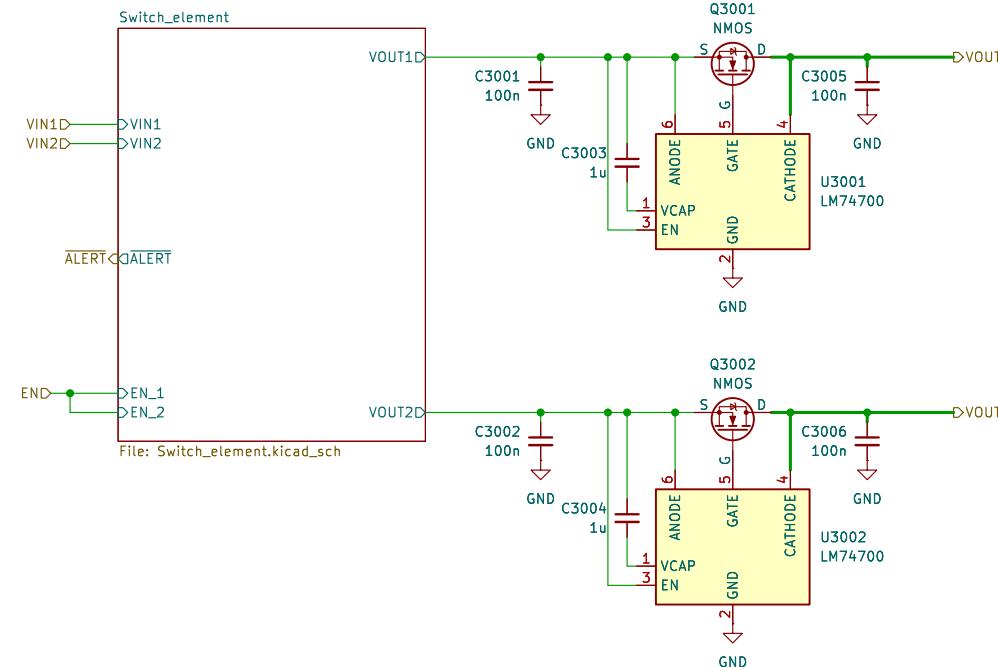
1 2 3 4 5 6



Inputs	Outputs
Input voltage	Output voltage
Input from CPU	

dedikovaný ideal diode IC

A



Sheet: /Solar_input_4/Switch_SOL_1/
File: Switch_H.kicad_sch

Title:

Size: A4 | Date:
KiCad E.D.A. 9.0.4

Rev:
Id: 32/107

A

A

B

B

C

C

D

D

A

A

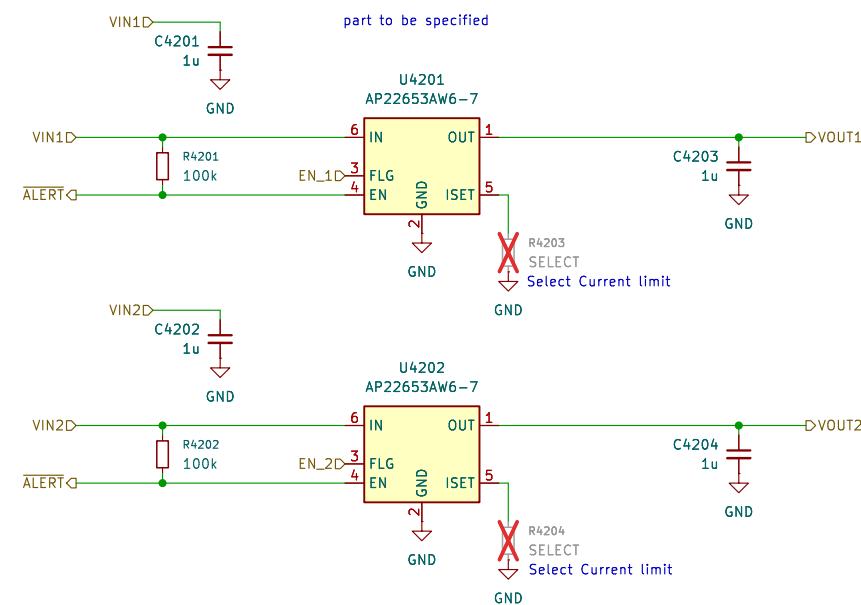
Candidates

6A
TPS281C30ERGWR
TPS25910RSAR
TPS1H200A-Q1 – too much Ron

TPS259802

10A
TPS1685
TPS25983
LTC4226

TPS25983



B

B

C

C

D

D

Sheet: /Solar_input_4/Switch_SOL_1/Switch_element/
File: Switch_element.kicad_sch

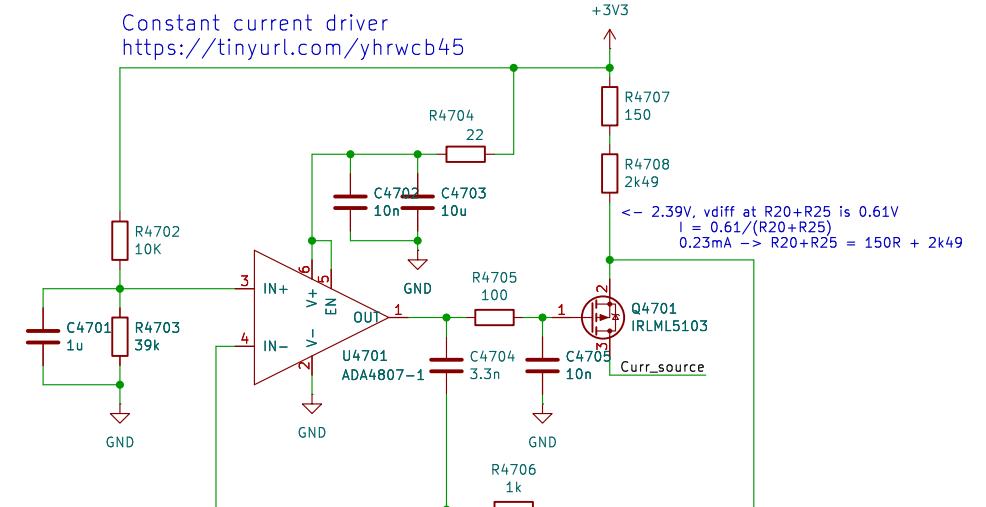
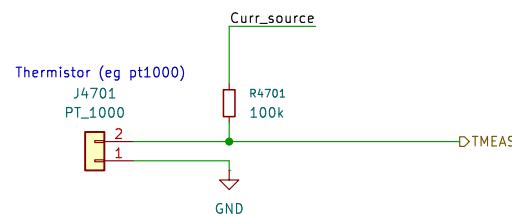
Title:

Size: A4 | Date:
KiCad E.D.A. 9.0.4

Rev:
Id: 44/107

1 2 3 4 5 6

From spacetemp



Sheet: /Solar_input_4/Temp_sens_solar_cell/
File: Temp_sens.kicad_sch

Title:

Size: A4 Date:
KiCad E.D.A. 9.0.4

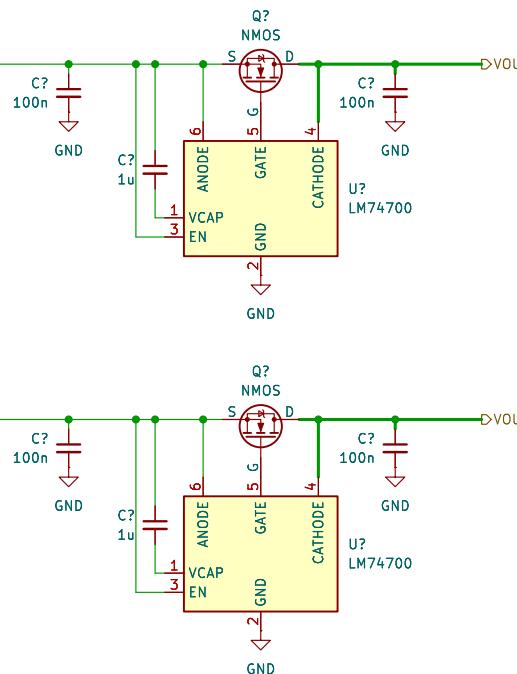
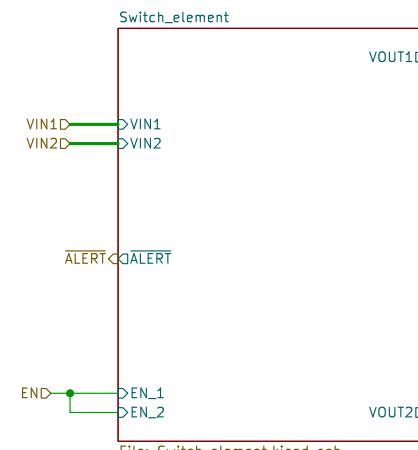
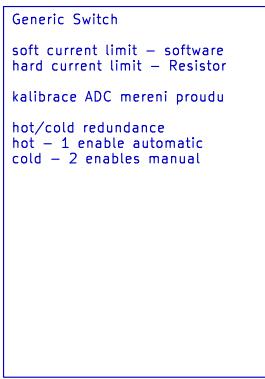
Rev:
Id: 49/107

1 2 3 4 5 6

Inputs	Outputs
Input voltage	Output voltage
Input from CPU	

dedikovaný ideal diode IC

A



Sheet: /Solar_input_4/Switch_SOL_2/
File: Switch_H.kicad_sch

Title:

Size: A4 | Date:
KiCad E.D.A. 9.0.4

Rev:
Id: 53/107

A

A

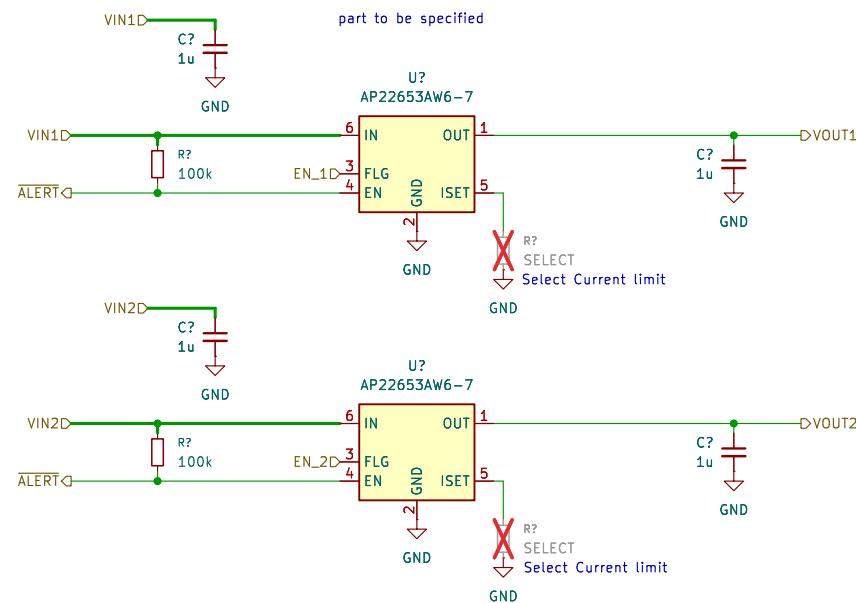
Candidates

6A
TPS281C30ERGWR
TPS25910RSAR
TPS1H200A-Q1 – too much Ron

TPS259802

10A
TPS1685
TPS25983
LTC4226

TPS25983



B

B

C

C

D

D

Sheet: /Solar_input_4/Switch_SOI_2/Switch_element/
File: Switch_element.kicad_sch

Title:

Size: A4 Date:
KiCad E.D.A. 9.0.4

Rev:
Id: 105/107

A

B

C

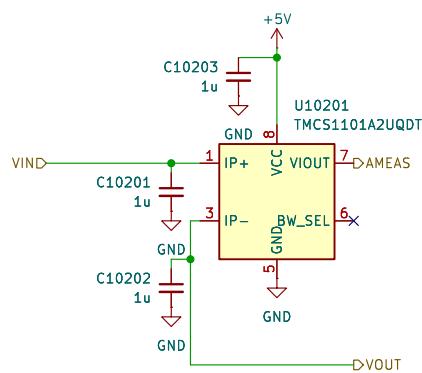
D

A

B

C

D

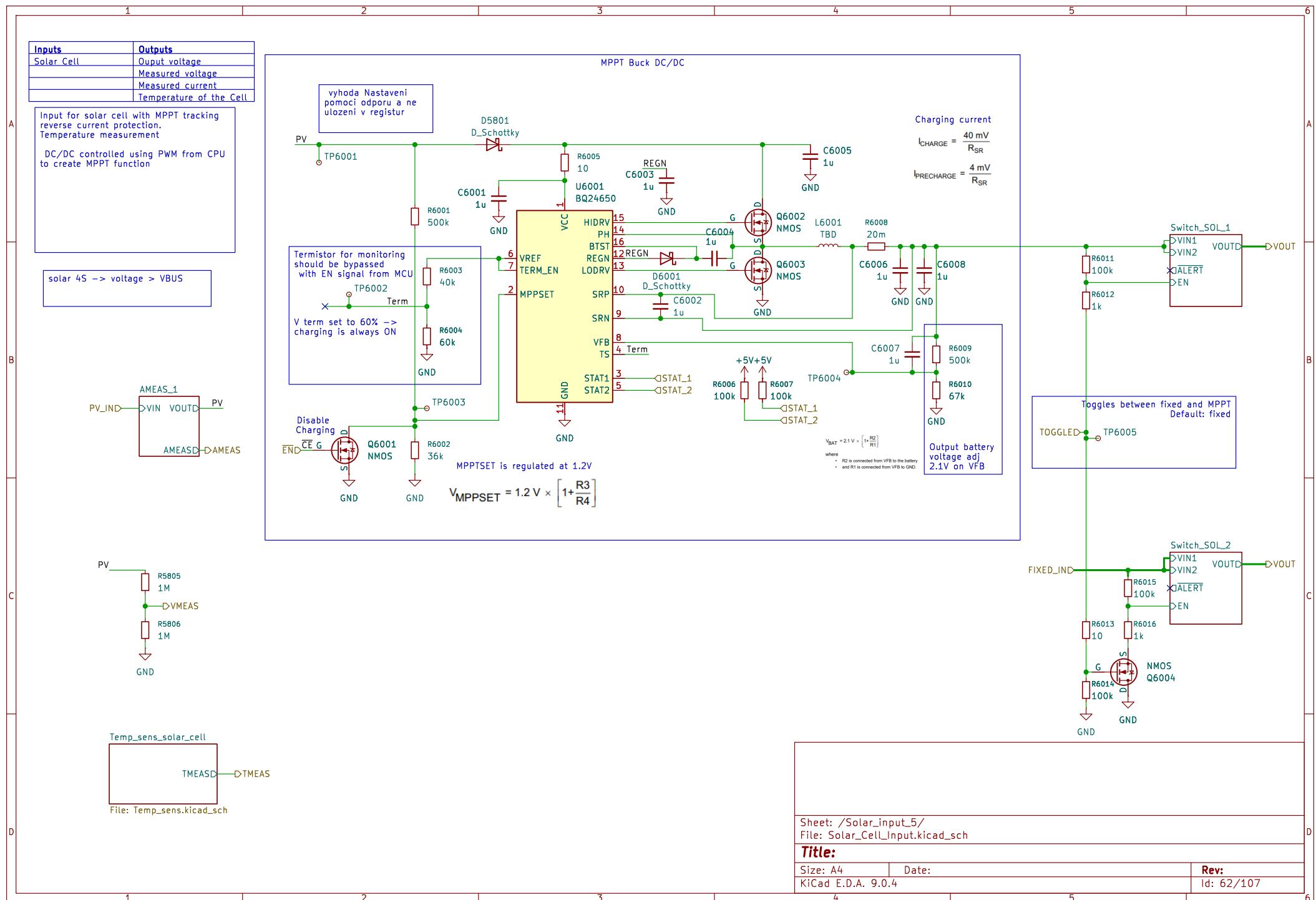


Sheet: /Solar_input_4/AMEAS_1/
File: Current_Measure.kicad_sch

Title:

Size: A4 | Date:
KiCad E.D.A. 9.0.4

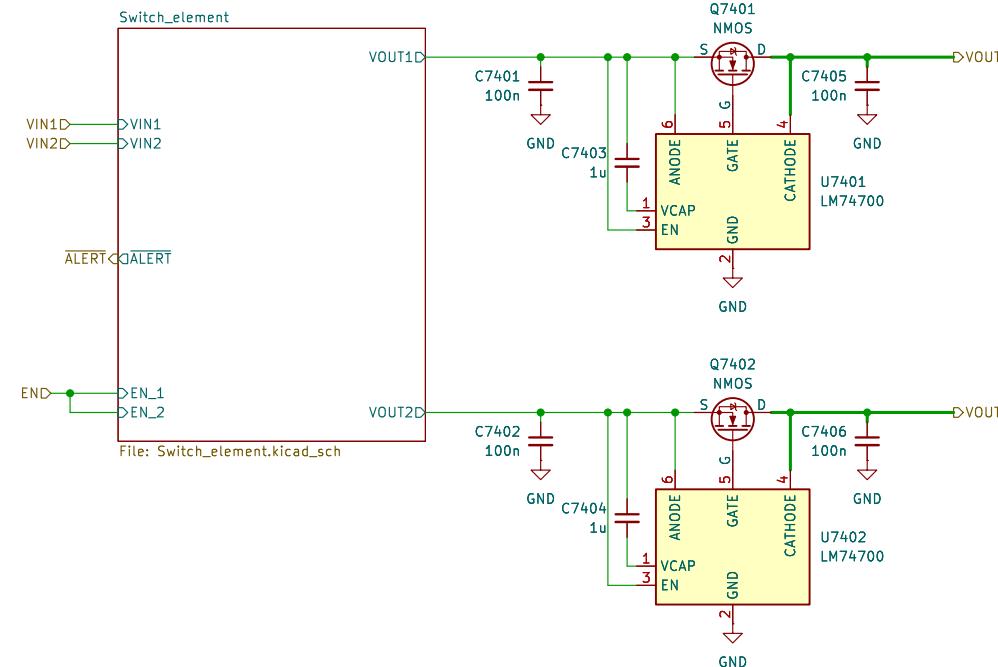
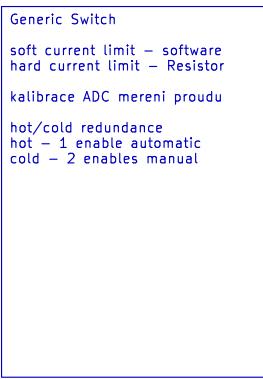
Rev:
Id: 108/107



Inputs	Outputs
Input voltage	Output voltage
Input from CPU	

dedikovaný ideal diode IC

A



Sheet: /Solar_input_5/Switch_SOL_1/
File: Switch_H.kicad_sch

Title:

Size: A4 | Date:
KiCad E.D.A. 9.0.4

Rev:
Id: 77/107

A

A

B

B

C

C

D

D

A

A

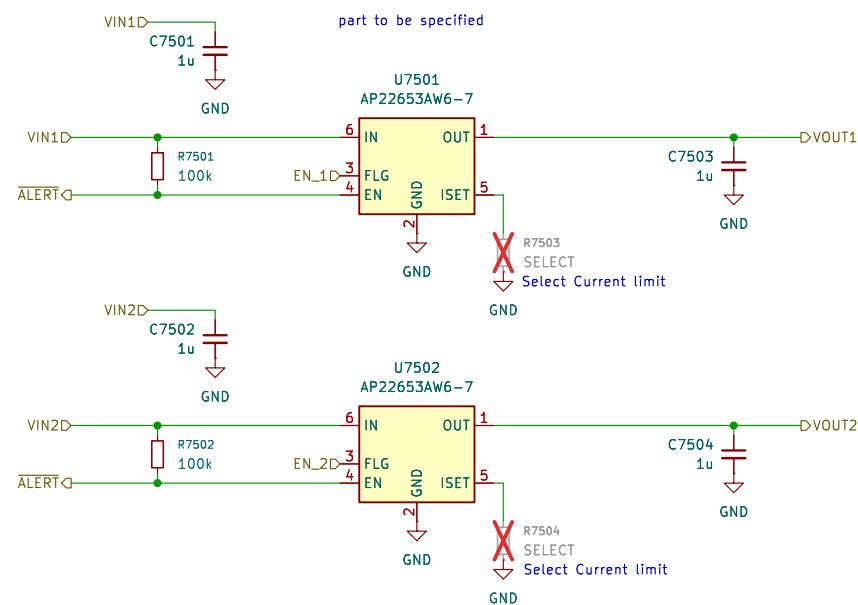
Candidates

6A
TPS281C30ERGWR
TPS25910RSAR
TPS1H200A-Q1 – too much Ron

TPS259802

10A
TPS1685
TPS25983
LTC4226

TPS25983



B

B

C

C

D

D

Sheet: /Solar_input_5/Switch_SOI_1/Switch_element/
File: Switch_element.kicad_sch

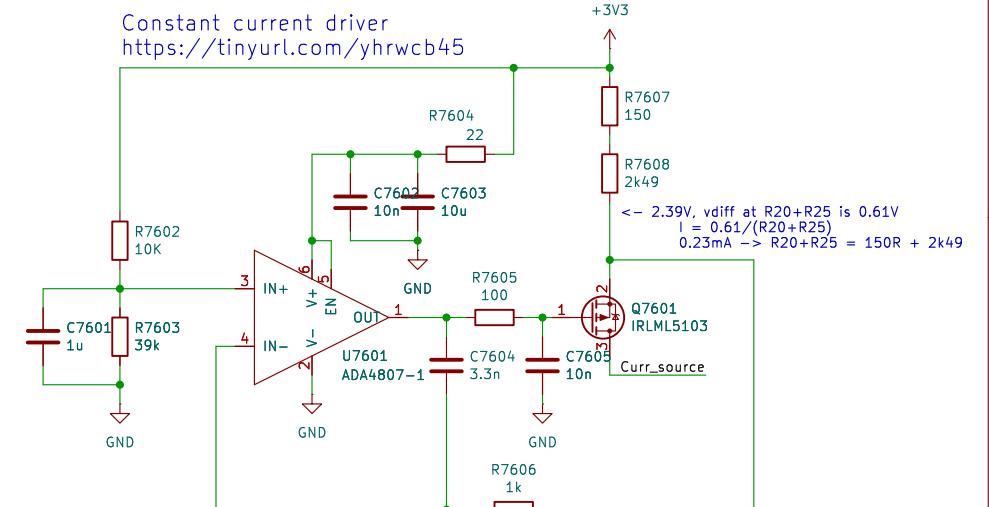
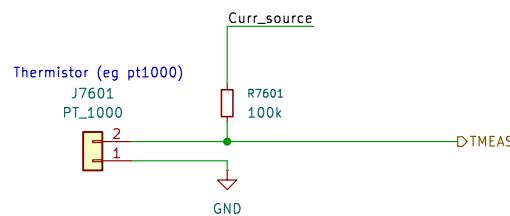
Title:

Size: A4 | Date:
KiCad E.D.A. 9.0.4

Rev:
Id: 78/107

1 2 3 4 5 6

From spacetemp



Sheet: /Solar_input_5/Temp_sens_solar_cell/
File: Temp_sens.kicad_sch

Title:

Size: A4 Date:
KiCad E.D.A. 9.0.4

Rev:
Id: 79/107

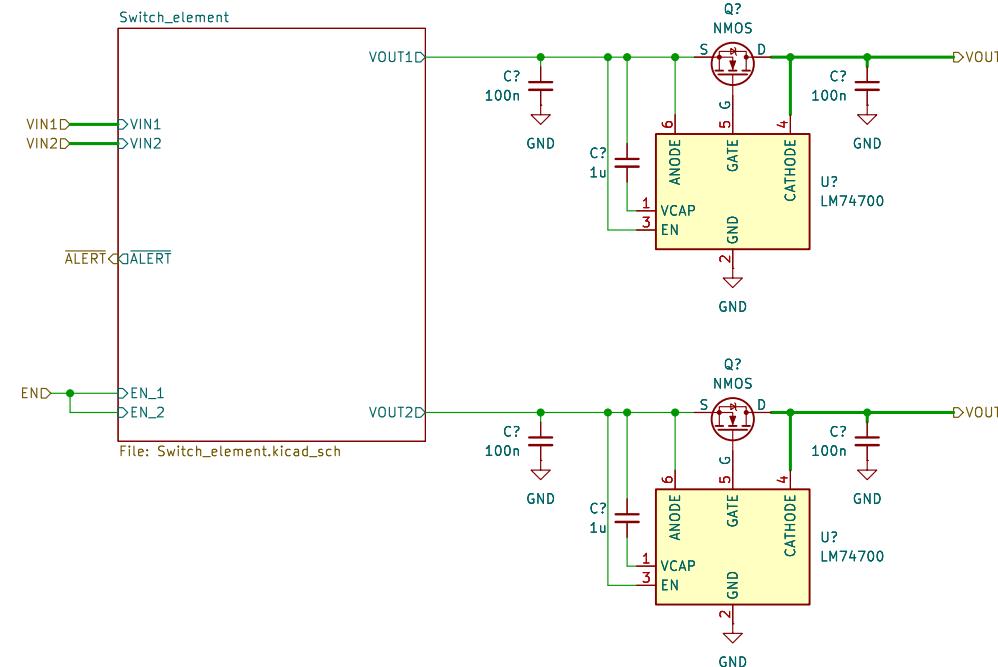
1 2 3 4 5 6

dedikovaný ideal diode IC

Inputs	Outputs
Input voltage	Output voltage
Input from CPU	

A

Generic Switch
soft current limit – software
hard current limit – Resistor
kalibrace ADC merení proudu
hot/cold redundance
hot – 1 enable automatic
cold – 2 enables manual



B



C

D

Sheet: /Solar_input_5/Switch_SOL_2/
File: Switch_H.kicad_sch

Title:

Size: A4 | Date:
KiCad E.D.A. 9.0.4

Rev:
Id: 80/107

A

A

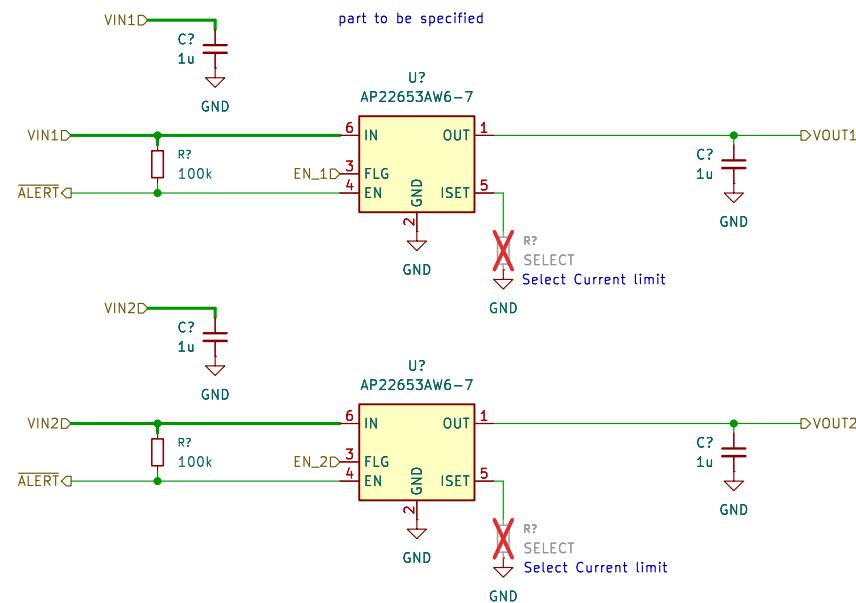
Candidates

6A
TPS281C30ERGWR
TPS25910RSAR
TPS1H200A-Q1 – too much Ron

TPS259802

10A
TPS1685
TPS25983
LTC4226

TPS25983



B

B

C

C

D

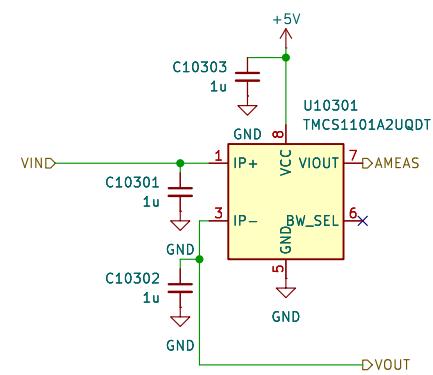
D

Sheet: /Solar_input_5/Switch_SOI_2/Switch_element/
File: Switch_element.kicad_sch

Title:

Size: A4 Date:
KiCad E.D.A. 9.0.4

Rev:
Id: 106/107

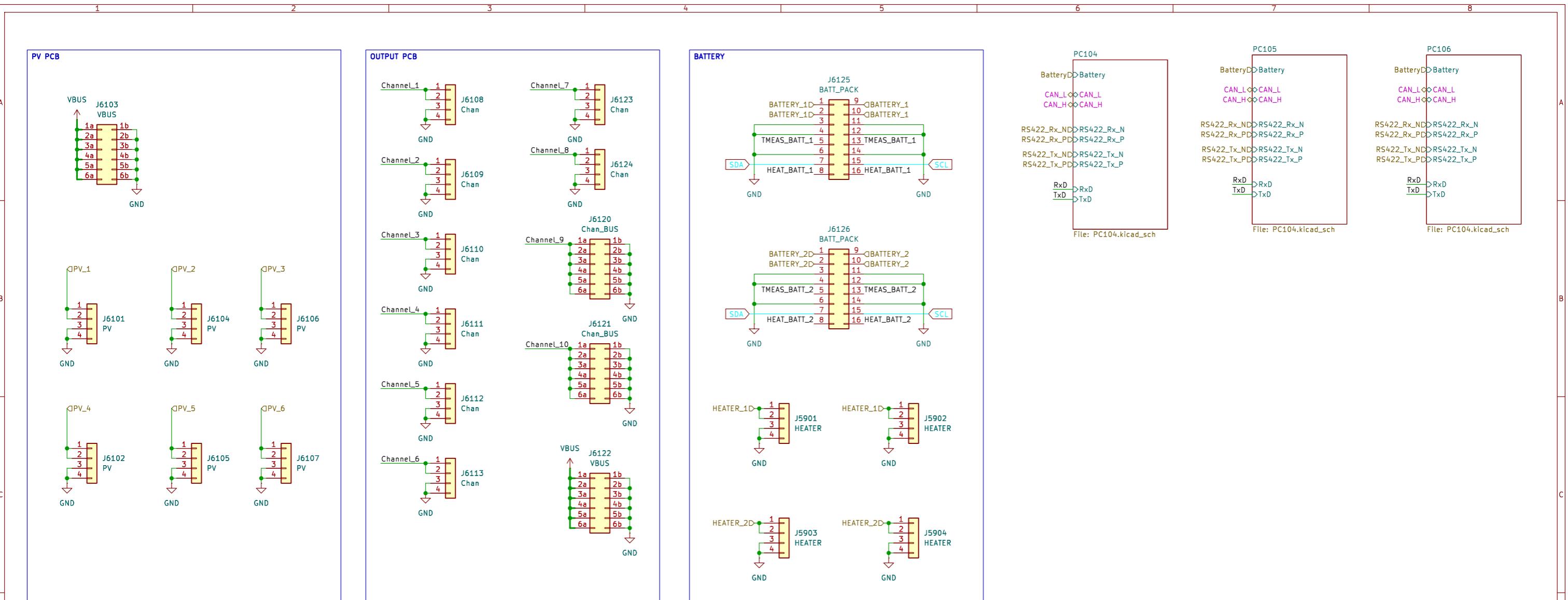


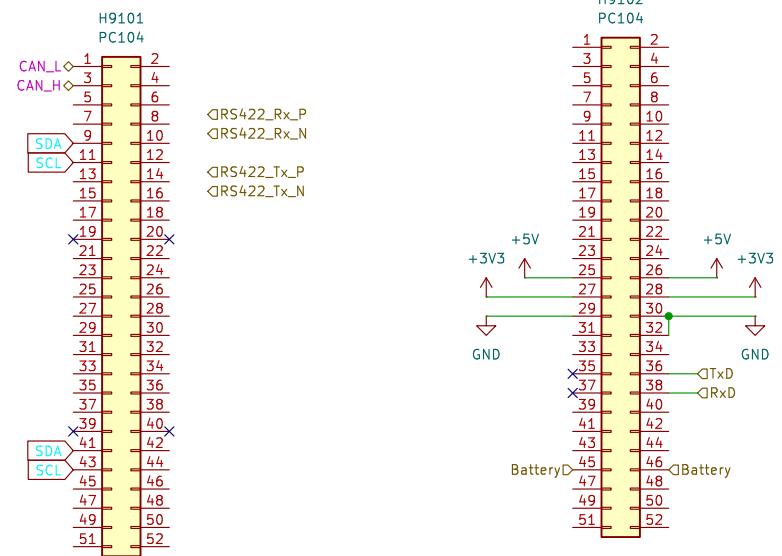
Sheet: /Solar_input_5/AMEAS_1/
File: Current_Measure.kicad_sch

Title:

Size: A4 Date:
KiCad E.D.A. 9.0.4

Rev:
Id: 109/107





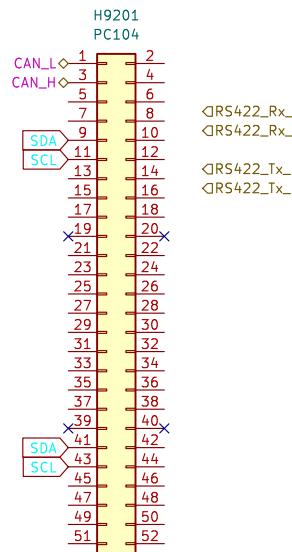
Sheet: /Interface/PC105/
File: PC104.kicad_sch

Title:

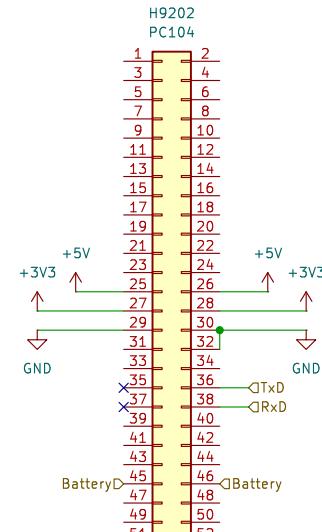
Size: A4 Date:
KiCad E.D.A. 9.0.4

Rev:
Id: 9/107

A



B



C

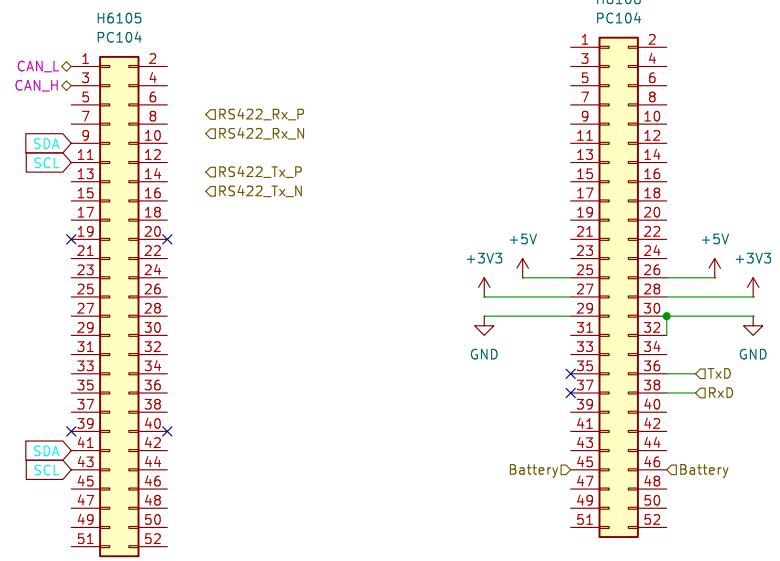
D

Sheet: /Interface/PC106/
File: PC104.kicad_sch

Title:

Size: A4 | Date:
KiCad E.D.A. 9.0.4

Rev:
Id: 16/107

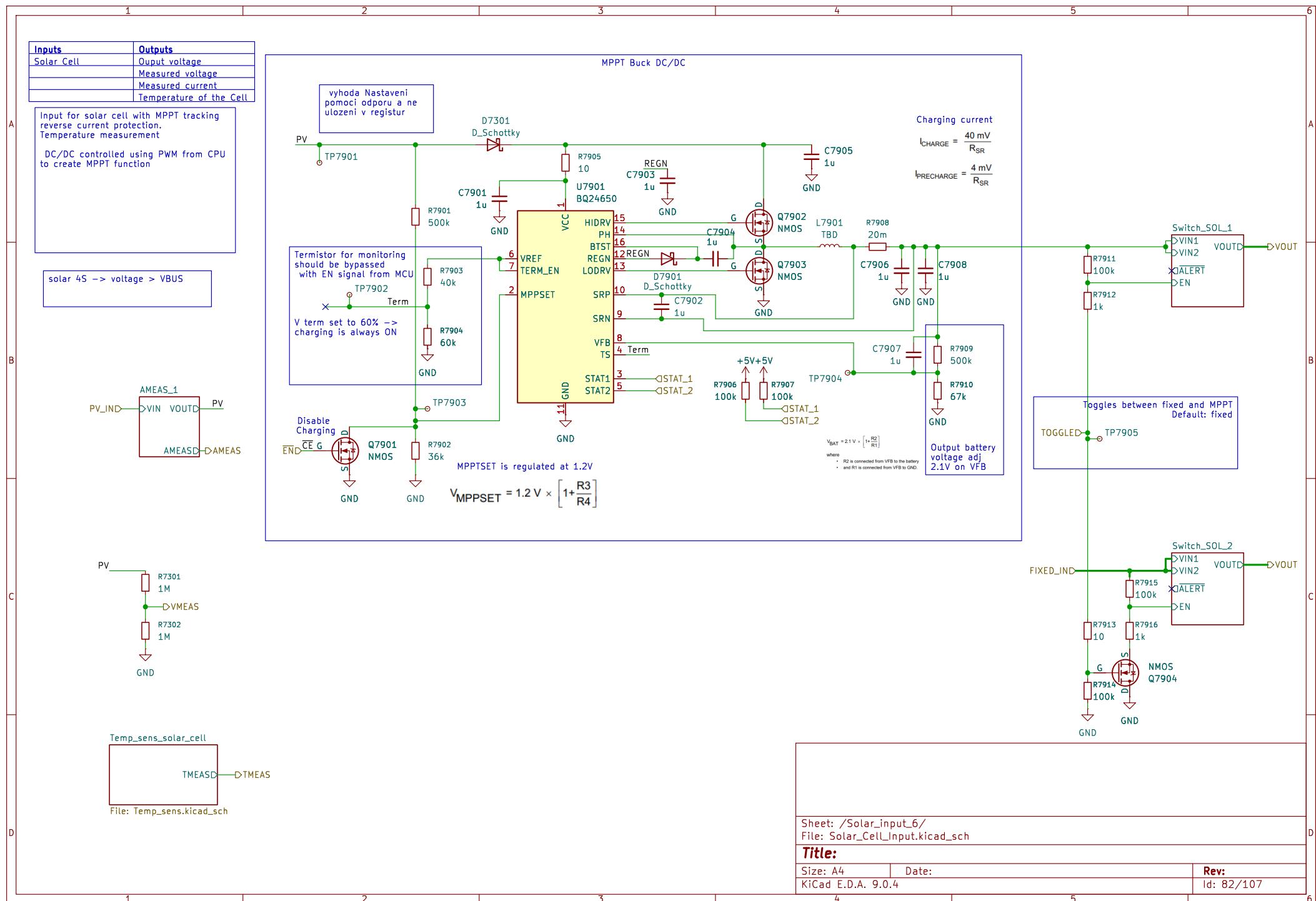


Sheet: /Interface/PC104/
File: PC104.kicad_sch

Title:

Size: A4 Date:
KiCad E.D.A. 9.0.4

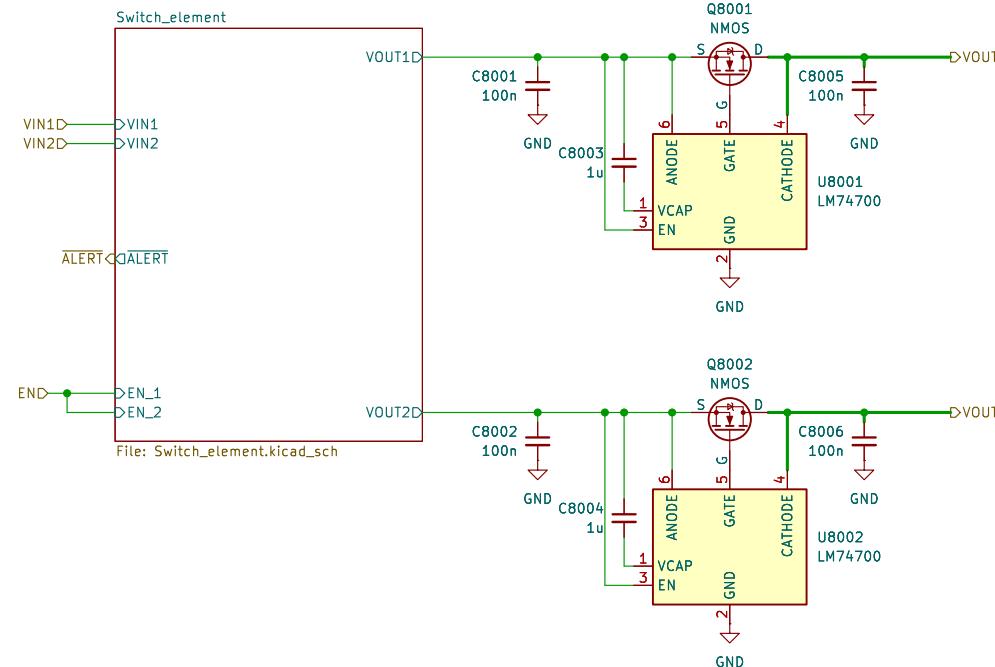
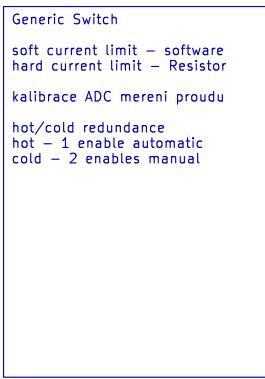
Rev: Id: 105/107



Inputs	Outputs
Input voltage	Output voltage
Input from CPU	

dedikovaný ideal diode IC

A



Sheet: /Solar_input_6/Switch_SOL_1/
File: Switch_H.kicad_sch

Title:

Size: A4 | Date:
KiCad E.D.A. 9.0.4

Rev:
Id: 83/107

A

A

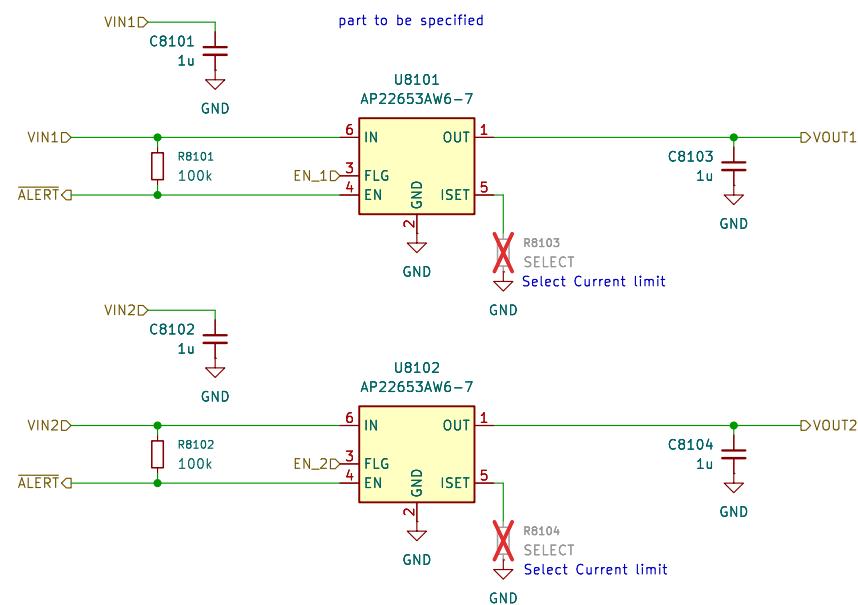
Candidates

6A
TPS281C30ERGWR
TPS25910RSAR
TPS1H200A-Q1 – too much Ron

TPS259802

10A
TPS1685
TPS25983
LTC4226

TPS25983



B

B

C

C

D

D

Sheet: /Solar_input_6/Switch_SOL_1/Switch_element/
File: Switch_element.kicad_sch

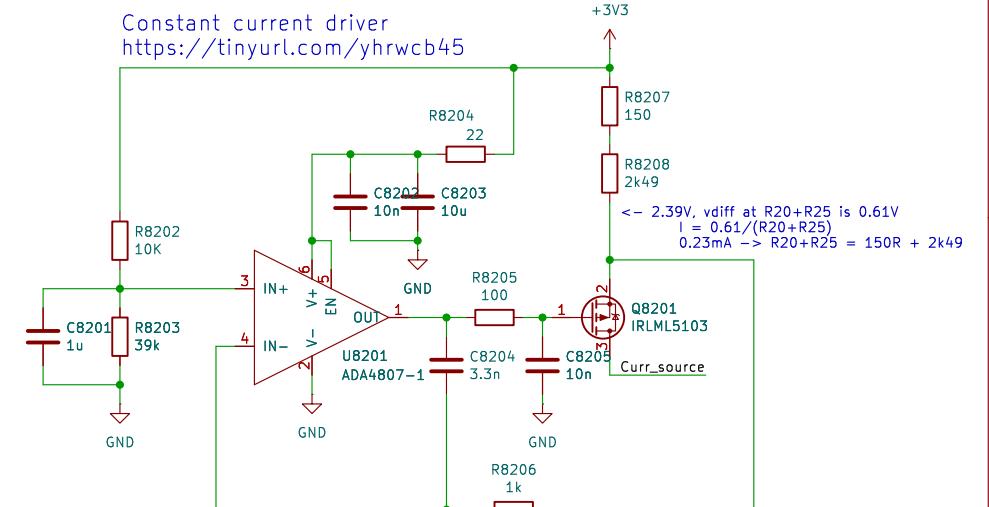
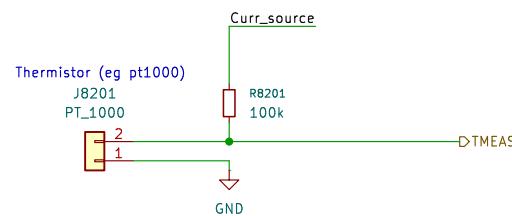
Title:

Size: A4 | Date:
KiCad E.D.A. 9.0.4

Rev:
Id: 84/107

1 2 3 4 5 6

From spacetemp



Sheet: /Solar_input_6/Temp_sens_solar_cell/
File: Temp_sens.kicad_sch

Title:

Size: A4 Date:
KiCad E.D.A. 9.0.4

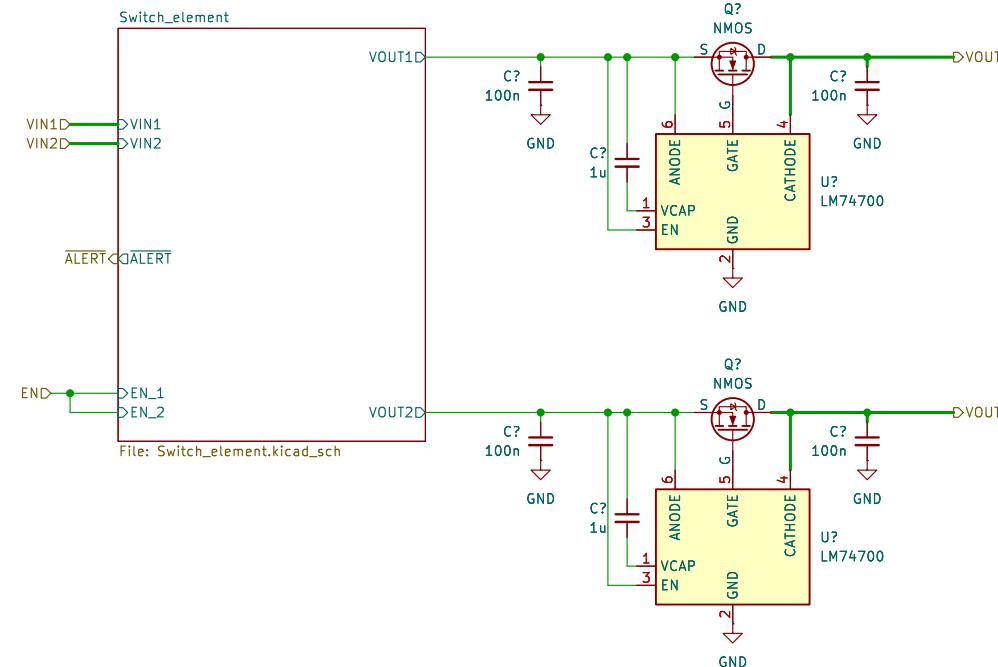
Rev:
Id: 85/107

1 2 3 4 5 6

Inputs	Outputs
Input voltage	Output voltage
Input from CPU	

dedikovaný ideal diode IC

Generic Switch
soft current limit – software
hard current limit – Resistor
kalibrace ADC merení proudu
hot/cold redundance
hot – 1 enable automatic
cold – 2 enables manual



Sheet: /Solar_input_6/Switch_SOL_2/
File: Switch_H.kicad_sch

Title:

Size: A4 | Date:
KiCad E.D.A. 9.0.4

Rev:
Id: 86/107

A

A

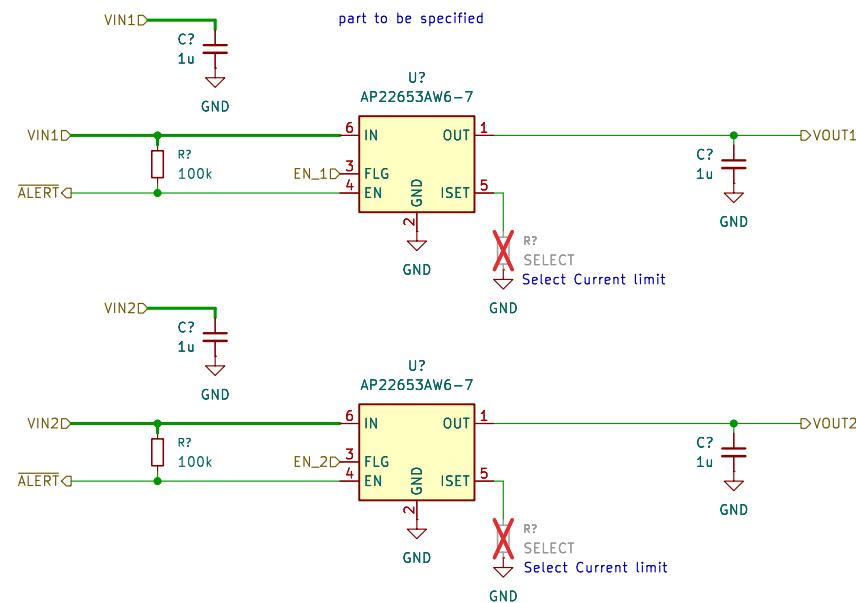
Candidates

6A
TPS281C30ERGWR
TPS25910RSAR
TPS1H200A-Q1 – too much Ron

TPS259802

10A
TPS1685
TPS25983
LTC4226

TPS25983



B

B

C

C

D

D

Sheet: /Solar_input_6/Switch_SOI_2/Switch_element/
File: Switch_element.kicad_sch

Title:

Size: A4 Date:
KiCad E.D.A. 9.0.4

Rev:
Id: 107/107

A

B

C

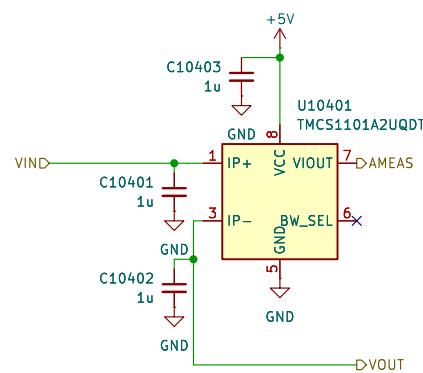
D

A

B

C

D



Sheet: /Solar_input_6/AMEAS_1/
File: Current_Measure.kicad_sch

Title:

Size: A4 | Date:
KiCad E.D.A. 9.0.4

Rev:
Id: 110/107

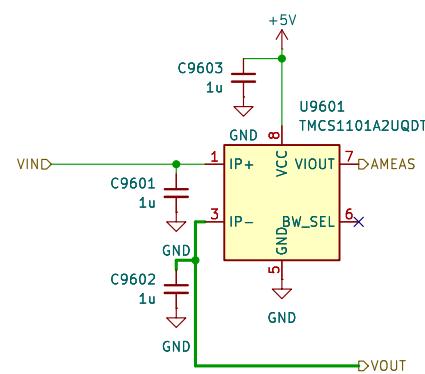
1 2 3 4 5 6

A

B

C

D



Sheet: /AMEAS_BUS/
File: Current_Measure.kicad_sch

Title:

Size: A4 | Date:
KiCad E.D.A. 9.0.4

Rev:
Id: 102/107

1 2 3 4 5 6

A

B

C

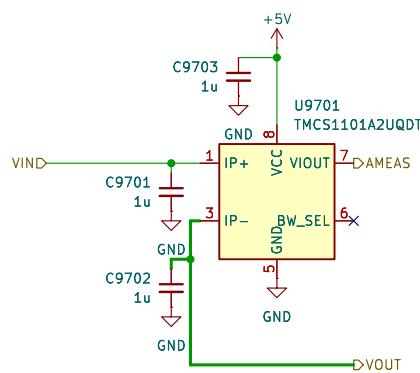
D

A

B

C

D



Sheet: /AMEAS_BATT_1/
File: Current_Measure.kicad_sch

Title:

Size: A4 | Date:
KiCad E.D.A. 9.0.4

Rev:
Id: 103/107

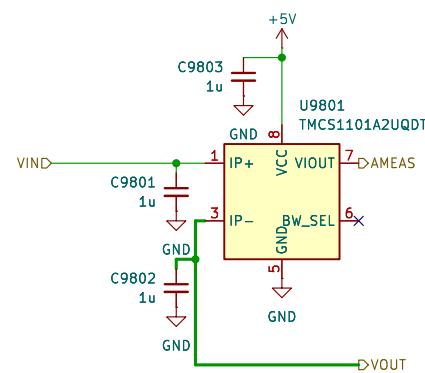
1 2 3 4 5 6

A

B

C

D



Sheet: /AMEAS_BATT_2/
File: Current_Measure.kicad_sch

Title:

Size: A4 | Date:
KiCad E.D.A. 9.0.4

Rev:
Id: 104/107

1 2 3 4 5 6

A

A

Inputs	Outputs
BUS Voltage	5V

2A

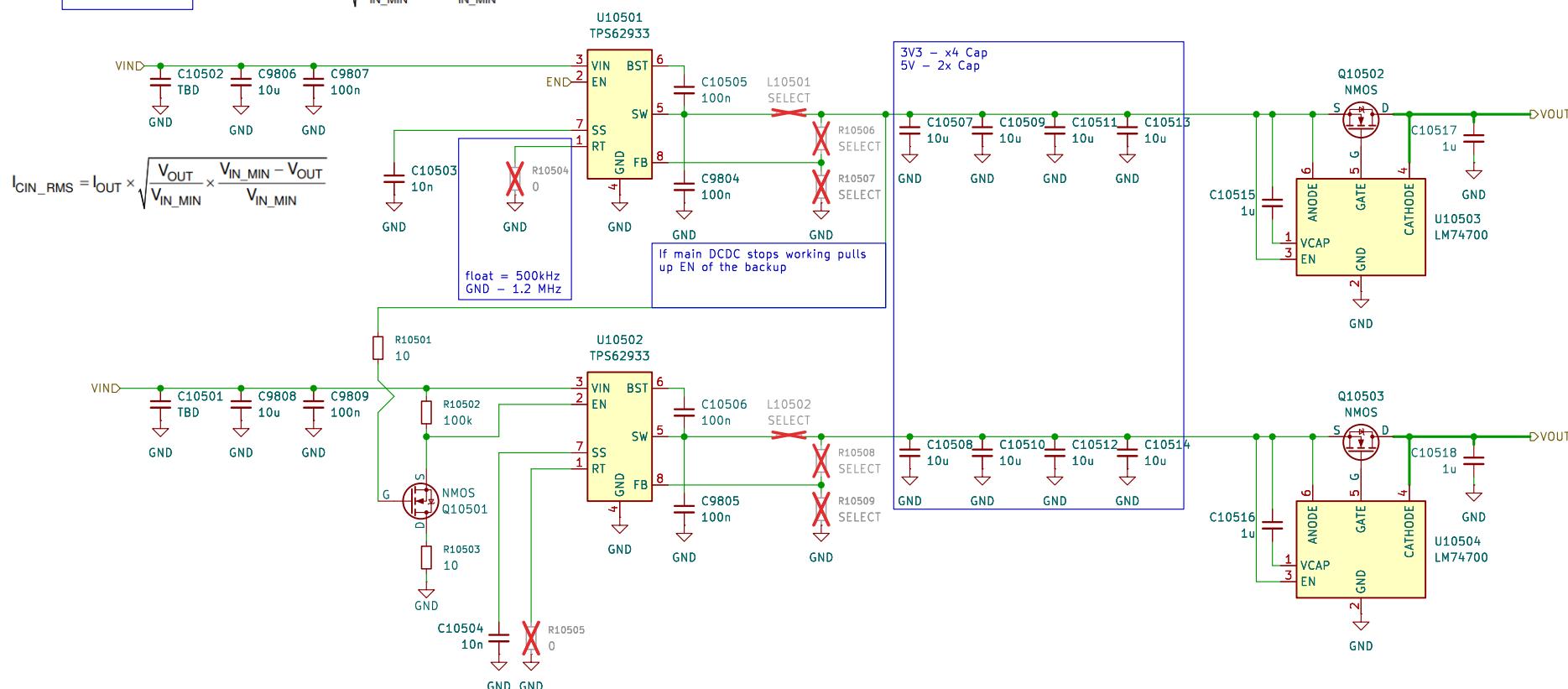
$$I_{CIN_RMS} = I_{OUT} \times \sqrt{\frac{V_{IN_MIN} - V_{OUT}}{V_{IN_MIN}}} \times \frac{V_{IN_MIN} - V_{OUT}}{V_{IN_MIN}}$$

Use Rxx03 and Rxx00 to select output voltage

Output voltage
5V
10000*(5V-0.8)/0.8 => Rxx03,Rxx00 =
52500

B

B



D

D

Sheet: /5V_DCDC_1/
File: DCDC_ADJUSTABLE.kicad_sch

Title:

Size: A4 Date:
KiCad E.D.A. 9.0.4

Rev:
Id: 111/107